CRITICAL SUCCESS FACTORS IN THE DEVELOPMENT OF THE KLIA AEROPOLIS

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APRIL 2019

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Executive Summary

In 2016, Malaysia Airports launched its five-year business plan 'Runway to Success 2020' ("RtS2020") guided by its vision of becoming 'The Global Leader in Creating Airport Cities'. It sets out how Malaysia Airports intends to create a sustainable business that delivers growth and allow the company to capitalise on future opportunities, providing a firm financial base from which to expand and make further investments.

The development of the KLIA Aeropolis was identified as one of the key strategic pillars of RtS2020. Aviation is crucial to many aspects of the economy, from trade to tourism and skills development. As airports are important links to global markets and crucial to a country's competitiveness, Malaysia Airports intends to support the nation's development agenda through the development of the KLIA Aeropolis.

The key objectives of KLIA Aeropolis is to achieve commercial sustainability for developmental assets and deliver economic impact and benefits to Malaysia, i.e. Gross domestic product ("GDP") contribution of RM30 billion with 56,000 jobs created over a fifteen (15) year period., aligned with the Refreshed Mandate 2019 launched by Khazanah.

The main objective of this study is to investigate the critical success factors in the development of the KLIA Aeropolis. The significance of this study is beyond the development of the KLIA Aeropolis, as it could also be the pragmatic references for the national and mega developments, whether this is local developments in Malaysia or overseas developments, which has economic impact and benefits, as well as job creation to the respective nations.

There were literature reviews conducted for the success factors contributing to the development of Aeropolis around the world, which covers the requirement for infrastructure and connectivity, evolving airport experience and other factors. As the Aeropolis concept is relatively new in Malaysia, the study has extended the reference to the national mega projects, which has similar impact to KLIA Aeropolis, i.e. the development of Iskandar Malaysia ("Iskandar") in Johor.

The study was conducted through a primary research method, namely interviews with the Management of Malaysia Airports with open-ended questions, which leads the development of the KLIA Aeropolis (collectively known as "Management") in January 2019. The four (4) respondents attended to the interview session were i) General Manager, Land Development, ii) Senior Manager, Infrastructure Planning and Land Administration, iii) Manager, Investment and Portfolio Management, and iv) Manager, Business Development.

In the analysis and evaluation section, it focuses on the analysis on overall development of Greater Kuala Lumpur, existing and proposed infrastructure, i.e. major highways, expressways and railway, as well as the surrounding development and population, and the respective implications for the development of the KLIA Aeropolis. The section was concluded with a SWOT analysis framework for the KLIA Aeropolis.

The Recommendation and Conclusion is the final chapter of this study. The report is concluded with the detailed discussion of all the nine (9) critical success factors being identified and recommended for KLIA Aeropolis, which can be categorised into the three (3) thrusts:

- Thrust one (1): Government Support and Alignment,
- Thrust two (2): Strategic Alliances with Reputable Developers and Partners,
- Thrust three (3): Well-defined Development Plan and Catalytic Developments

Its recommended by the study that, among all, Thrust one (1): Government Support and Alignment, contains the most critical success factors for the development of KLIA Aeropolis. The success of Iskandar development reinforces the importance of the role of government in the mega development projects. Therefore, the predominant and immediate focus of Malaysia Airports should be leveraging on the influence of its majority shareholders Khazanah to embrace the development of KLIA Aeropolis as a national agenda. Concurrently, Malaysia Airports should pursue discussion and negotiation with government on land lease extension, incentives with the government, as well as the support on infrastructure development and connectivity.

The second Thrust two (2), to establish the partnership with the reputable developers and partners, for instances the potential reputable developers are Mah Sing, UM Land, WCT,

Sunway, SP Setia, E&O etc, and the potential strategic partners could be from infrastructure and construction, healthcare, theme park, and sustainable energy development, for the development of the KLIA Aeropolis.

The final Thrust three (3): Well-defined Development Plan and Catalytic Developments, including marketing positioning for KLIA Aeropolis, execution strategy (land uses and development phasing), intermodal transport hub and flagship and catalytic developments.

Table i: Summary of the Critical Success Factors in the Development of KLIA Aeropolis

Objectives of KLIA Aeropolis	To achieve commercial sustainability for developmental assets and deliver economic impact and benefits to Malaysia, i.e. **GDP contribution of RM30 billion** with **56,000 jobs created** over a 15-year period.
Thrust 1: Government Support and Alignment	
1) Embracing it as a national agenda and forming a dedicated authority to drive the execution	
2) Land Ownership Structures	
3) Incentives for Business	
4) Support from the government on infrastructure development and connectivity	
Thrust 2: Strategic Alliances with Reputable Developers and Partners	
5) Attract the participation of reputable developers and strategic partners in KLIA Aeropolis	
Thrust 3: Well-defined Development Plan and Catalytic Developments	
6) Market Positioning – "KLIA as the logistical heart of Southern Corridor"	
7) Well-defined execution strategy – land uses and development phasing	
8) Intermodal Transport Hub	
9) Flagship and Catalytic Developments	

Chapter 1: Identification of Issues

1. Introduction

The study will begin with the introduction of Malaysia Airports Holdings Berhad ("Malaysia Airports"), its strategic business plan 'Runway to Success 2020' as well as KLIA Aeropolis, as one of its strategic pillars.

1.1. The Profile of Malaysia Airports

Malaysia Airports has gone through a long journey since the incorporation in year 1992 as Malaysia Airports. Prior to the corporatization, Malaysia Airports was a state-run airport operator. In year 1999, Malaysia Airports was listed on the Bursa Malaysia, the Malaysian Stock Exchange, emerging as the first listed Asian airport operator.

With the years of relentless efforts, Malaysia Airports has emerged and become one of the world's largest airport operators, handling a total of 133.1 million passenger movements. The company manages 39 airports across Malaysia, with five (5) are international airports, 16 domestic airports and 18 STOLports, airports with STOL (Short Take-Off and Landing) operations) as well as one (1) international airport, namely Istanbul Sabiha Gökçen International Airport in Turkey.

As an airport operator, there are two (2) major revenue sources of Malaysia Airport, namely the aeronautical revenues and commercial revenue. The former derived from the fees and charges on aircraft landing and parking, passenger service and other charges for airlines; while the latter derived the airport-related services, for instance revenues from duty-free shops, retail outlets, commercial leasing and hotel operations.

For the future, the vision of Malaysia Airports is to become the global leader in creating airport cities, by leveraging on the commercial and growth opportunities in the tourism and aviation industry, via the availability of land bank surrounding Kuala Lumpur International Airport ("KLIA").

The key objectives of these strategic direction are to allow Malaysia Airports to ensure the returns to its shareholders, as well as maintaining the competitiveness of its aviation charges, benefitting the overall airline industry and the travellers. Furthermore, this allows Malaysia Airports to play its responsibility as a worthy corporate citizen, by subsidizing the smaller airports in rural communities. These airports are generally used for the connection between the rural areas and the closest townships or cities, especially in Sabah and Sarawak. (Management, 2019)

1.2. Five-Year Business Plan – Runway to Success 2020

Malaysia Airports launched the 'Runway to Success 2020' (RtS2020) in year 2016. This is a five-year business plan with a vision of becoming 'The Global Leader in Creating Airport Cities'. There are two (2) main thrusts encapsulated in the RtS2020, which is strengthening its core airport business, and expansion of international business and diversification into KLIA Aeropolis.

To strengthen its core airport business, Malaysia Airports is committed to the establishment of Kuala Lumpur as a preferred hub for Association of Southeast Asian Nations (ASEAN), via its competitive aeronautical charges and strategic location within Asia Pacific region. Being a customer-centric organisation and the main gateway to foreigners, Malaysia Airports will strive to enhance the total airport experience (TAE) and service quality, via a series of digitized initiatives.

Aviation sector is crucial and spanned across many industries of Malaysia, including trade, airlines, aerospace, air cargo and logistics and tourism. In view of its role in the aviation industry, Malaysia Airports will support the nation's development agenda through the development of the KLIA Aeropolis.

Economic Transformation Programme ("ETP") is embraced with a great vision, i.e. transforming Malaysia into a high-income nation by year 2020. According to the master plan, the development of KLIA Aeropolis focuses on three key clusters, namely air cargo and logistics, business and aviation parks, as well as meetings, incentives, conventions and exhibitions (MICE) and leisure. The KLIA Aeropolis development could leverage on the potential as the three (3) identified development clusters are supported by several initiatives of Malaysia.

To date, there are some catalytical projects and early successes, including the Mitsui Outlet Park KLIA and Gateway@klia2 shopping mall. These development projects are among the key drivers of population growth to the airport and its vicinity.

Apart from KLIA Aeropolis, under the expansion and diversification thrust, the second strategic priority is positioned to drive overseas investment, build a balanced diversified portfolio of international assets while exporting core airport consultancy and operator services. Malaysia Airports became the first Asian airport operator to assume full control of an European airport after the completion of the acquisition of 100 per cent shareholding of Istanbul Sabiha Gokcen International Airport (ISG) in year 2014. (Malaysia Airports website, 2019)

1.3. KLIA Aeropolis as a Strategic Pillar in Malaysia Airports' Five-Year Business Plan

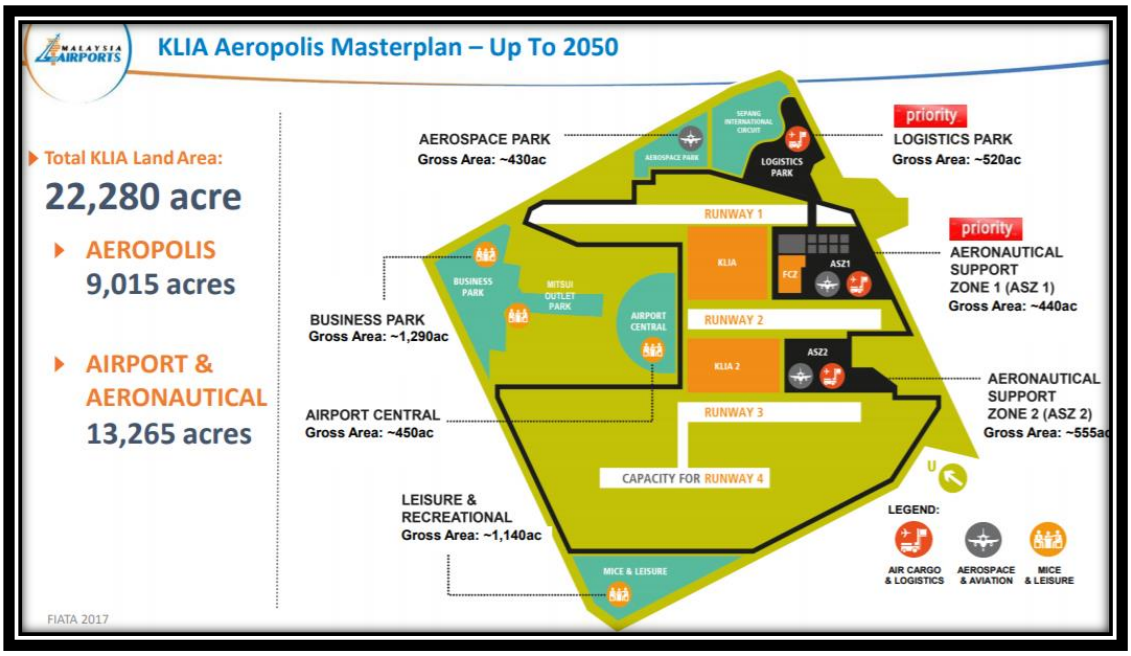
Malaysia Airports is going through an exciting transformation journey from an airport operator into an ecosystem manager. The development of the KLIA Aeropolis will stand as the airport's multimodal business core, spanning more than 100 km^2 (~22,000 acres of land) of aviation, business and leisure space, KLIA Aeropolis (with ~9,000 acres of land) is at the heart of ASEAN.

With more than 1,300 flights across the region, locators at the KLIA Aeropolis have the access to more than 600 million consumers market. The ASEAN Economic Community estimates the overall real value of ASEAN's gross domestic product to reach USD 5 trillion by 2020. (Malaysia Airports website, 2019).

The KLIA Aeropolis development initiative will stimulate economic activities through three (3) identified clusters:

- Air cargo and logistics;
- Aerospace and aviation; and
- Meetings, Incentives, Conventions and Exhibitions (MICE), and leisure.

In May 2016, the then Managing Director Datuk Badlisham Ghazali shared that the KLIA Aeropolis development plan is estimated to attract a GDP contribution of about RM30 billion with 56,000 jobs created over a 15-year period, of which the projection is based on the economic impact analysis conducted by PricewaterhouseCoopers ("PwC"). The KLIA Aeropolis aimed at facilitating a more cohesive KLIA cargo community, with an annual long-term forecast of between 2.5 million tonnes to three million tonnes by 2050, from about 726,000 tonnes in 2016 (Malay Mail, 2016)



Source: Management, 2019

Figure 1.1: KLIA Aeropolis Masterplan

1.3.1. The Air Cargo and Logistics Cluster

On the air cargo and logistics cluster, the plan is to expand KLIA to become a regional multimodal transhipment hub. Besides airfreight, infrastructure is also being set up to support sea freight and land transhipment such as cross-border trucking cargo.

The plan includes collaboration with up-and-coming regional transhipment and cargo feeder centres in other airports across Malaysia. These development plans are intended to capitalise cargo and e-commerce megatrends, underpinning trade

growth and further supporting ASEAN international trade. One of the core vehicles in achieving these goals is the Digital Free Trade Zone (DFTZ).

Malaysia Airports announced during the launch the incorporation of Cainiao KLIA Aeropolis in November 2017, a joint venture between Malaysia Airports' wholly owned subsidiary MA eLogistics and Cainiao Hong Kong (Cainiao HK), Alibaba's logistics arm. The joint venture will develop cargo terminals, warehouses, fulfilment centres, sorting facilities and other e - commerce facilities (Malaysia Airports website, 2019)

KLIA Aeropolis DFTZ Park is recognized as the first Electronic World Trade Platform ("EWTP") hub outside China by strategic collaboration with Alibaba. It is Malaysia Airports' ambition and priority to ensure a successful collaboration with Cainiao HK to revolutionise the e-commerce and logistics sector in Malaysia. The goal is to make KLIA Aeropolis DFTZ Park a regional fulfilment centre for the consolidation and distribution of e-commerce Business-to-Customer ("B2C") and Business-to-Business ("B2B") merchandise within ASEAN and Oceania and later catapulting to become a global hub. The project will consist of a single-phase development, built on a land area of approximately 60 acres (Malaysia Airports website, 2019)

Malaysia's excellent flight connectivity and surplus capacity within ASEAN will facilitate the plan of the new joint venture to re-route ASEAN's transhipment volume via KLIA. With its plan to expand KLIA to become a regional multimodal transhipment hub, KLIA Aeropolis will support the movement of goods for DFTZ also through sea and land including cross-border trucking.

With additional investment injected by Alibaba, Malaysia Airports expects these initiatives to double the cargo volume in KLIA to 1.25 million tonnes per annum within ten (10) years. This significant volume growth will enhance airline profitability, making KLIA a highly feasible destination for airlines (Malaysia Airports website, 2019)

1.3.2. The Aerospace and Aviation Cluster

The aerospace and aviation cluster comprise various government-favoured entry-point projects that include maintenance, repair and overhaul (MRO), original equipment manufacturing and aerospace engineering services.

Regional hubs for private jet aircraft and aero-manufacturing services will attract critical mass and help Malaysia become the region's leading aviation business centre. The plan identified under this cluster is aligned with the National Aerospace Blueprint (2015–2030), which aims to position Malaysia as Southeast Asia's number one aerospace nation and an integral part of the global market.
The aerospace ecosystem in Subang, for instance, hosts major aerospace and aviation players around the world including GE Aviation, Global Turbine Asia-Safran Helicopter Engines, Spirit AeroSystems and Airbus Helicopters Malaysia.

For example, Spirit AeroSystems is one of Boeing's largest aircraft parts supplier that has been attracting a variety of tier-2 and tier-3 players to Subang since its commencement in year 2007. Spirit AeroSystems also serves Airbus on a manufacturing and assembly facility of 242,000 sq ft. The parts are shipped from the main sub-assembly facility of Spirit AeroSystems in Subang to the final wing assembly unit of Airbus in Broughton, Britain.

Meanwhile, Subang Helicopter Centre hosts seven (7) players including Airbus Helicopters Malaysia within a dedicated 8-hectare site. Airbus Helicopters operates on a 100,000 sq ft, built-to-suit facility complete with an office building, dedicated hangar and a simulator centre, which is the first of its kind in ASEAN (Management, 2019).

1.3.3. The MICE and Leisure Cluster

Meanwhile, the MICE and leisure cluster is committed to expanding KLIA's service portfolio, thereby giving passengers a richer business and entertainment experience. This development plan of this cluster is aligned with Malaysia's Economic Transformation Programme (ETP) in the tourism sector, particularly with the Kuala Lumpur Tourism Masterplan (2015-2025) billed as "Initiative 10.14 – Expand Connectivity to KL".

For instance, the Mitsui Outlet Park is Malaysia Airports' first non-airport real estate development project under the MICE and leisure cluster. Malaysia Airports signed a joint venture with Mitsui Fudosan in 2013 to develop Mitsui Outlet Park. Since its opening in year 2015, the development has been performing well and the development of phase 2 has been completed an operational in Oct 2018.

Being built on a 27,500-square-metre site near Mitsui Outlet Park, Phase 2 hosts 60 more shops and 500 more car park lots to complement the existing 140 stores and 2,100 parking spaces. The development is introducing more premium brands to the outlet and is bound to increase the presence of luxury international and local brands in fashion, cosmetics, sportswear and accessories. Phase 2 of the Mitsui Outlet Park will explore a fresh ambient experience with its sky walk and river walk themes, which are in line with the "paradise village" architectural concept of Phase 1.

In addition to this, KLIA Aeropolis comes with the full measure of tax and other financial incentives given to investors under the ETP. Business clusters at the city are all aligned with the government's national agendas such as the National Logistics and Trade Facilitation Masterplan (2015-2020), National Aerospace Industry Blueprint (2015-2030) and many national key economic areas such as business services and tourism (Management, 2019).

1.4. Identification of Key Issues

This section will focus on identification of potential issues encountered in the development of the KLIA Aeropolis.

The key challenges could potentially be the support from government on the land lease extension, infrastructure development and connectivity, requirement for government facilitation and incentives. It's anticipated that more challenges to be discovered during the interview session conducted with the Management team.

1.4.1. Land Ownership Structures

Given its land lease structure and a relatively short-tenure remaining (~15 years) which is expiring in February 2034, this will have an impact on the feasibility, speed and types of developments that will be achievable, as opposed to a freehold land and leasehold land title (Feder & Feeny, 1991; Shivji, 1998; Kung & Liu, 1997).

- The potential for large scale commercial developments will be challenging, including retail and purpose-built office, require constant renewal and redevelopment, as these commercial offerings generally have long lifespans. Not having certainly of ownership could have a significant impact on owners' willingness to invest and maintain the quality of projects, particularly in the years leading up to the end of the lease.

- Industrial REITs may be less willing to get involved in leasehold or land lease developments. REITs generally want long term, cash generating assets. A lack of ownership may make it difficult for financing purpose and least attractive for REITs.

1.4.2. Infrastructure Development and Connectivity

Connectivity has strong influence and impact to the development of aerotropolis and its surrounding land values. Basic infrastructure namely highways trains metro, light rail, and suburban lines are important connections to city the centres (Duffy-Deno & Eberts, 1989; Rietveld, 1989; Hsu, 2017).

Refer to airports in Amsterdam, Frankfurt, and Paris, the high-speed rail networks are connected directly to the airport terminal, improving the connectivity between nations, and help the development along airport corridors (Kasarda, 2010, 2011, 2013).

Each of these infrastructures and connectivity will play a significant role in the development of the KLIA Aeropolis.

1.4.3. Government Facilitation and Incentives

Generally, developers are always looking to support their large-scale developments through the provision of various incentives offered by for businesses (Batley, 2006; Ginevičius & Šimelytė, 2011).

As the first cybercity in Malaysia and the core of the Multimedia Super Corridor (MSC Malaysia), the neighbouring Cyberjaya has always been key in moving Malaysia towards an innovation – led economy. Not surprisingly, many Cyberjaya incentives apply to companies that continue this vision, such as tax incentives, 100 per cent foreign ownership, duty-free hardware and double deduction for certain expenses.

Reference is also being made to the types of incentives offered in Iskandar Development Region, such as an exemption from withholding and corporate tax on royalties and technical fees paid to non – residents for a period of ten (10) years, lower personal income tax for qualified knowledge workers and the unrestricted sourcing for capital and labour globally, incentives granted by Government Malaysia is crucial to attract foreign investments in ensuring the successful development.

It's widely anticipated that KLIA's competitors may be positioning themselves for this. The absence of specific incentives proposed for KLIA Aeropolis will put the development at a disadvantage.

1.5. Objectives and Research Questions

The main objective of this study is to investigate the critical success factors in the development of the KLIA Aeropolis.

The specific objectives of this study are:

a) To identify the critical success factors in the development of the KLIA Aeropolis; and
b) To analyse the critical success factors in the development of the KLIA Aeropolis.

To achieve the main and specific objectives, the research questions of this study are:

a) What are the factors affecting the development of the KLIA Aeropolis?
b) What is the relationship between the critical factors and the development of the KLIA Aeropolis?

The significance of this study is not limited to identification and investigation of the critical success factors in the development of the KLIA Aeropolis. In March 2019, Khazanah launched its Refreshed Mandate 2019, where Malaysia Airports is being positioned as one of its strategic assets, of which the core investment objectives for these assets are, i) to generate enhanced shareholder return, and ii) to achieve commercial sustainability for developmental assets and deliver economic impact and benefits, as well as job creation to the nation.

The findings from this study on the critical success factors on KLIA Aeropolis, together with the case study conducted on Iskandar Development Region, in the later session of this report, could be some pragmatic references for the national and mega developments, whether this is local developments in Malaysia or overseas developments, which has economic impact and benefits, as well as job creation to the respective nations.

Chapter 2: Literature Review

2. Connections to Theoretical and Empirical Research

This chapter focuses on the literature review for the success factors contributing to the development of Aeropolis around the world, which covers the requirement for infrastructure and connectivity, evolving airport experience, and the operating structure required to develop their landscapes and promote development beyond the borders of airports .

2.1. Infrastructure and Connectivity

Connectivity has strong influence and impact to the development of aerotropolis and its surrounding land values. Basic infrastructure namely highways trains metro, light rail, and suburban lines are important connections to city the centres (Duffy-Deno & Eberts, 1989; Rietveld, 1989; Hsu, 2017).

Refer to airports in Amsterdam, Frankfurt, and Paris, the high-speed rail networks are connected directly to the airport terminal, improving the connectivity between nations, and help the development along airport corridors (Kasarda, 2010, 2011, 2013).

Global networks of Information and Communications (ICT) are the key factors in Aeropolis' development also. Advanced information technologies should be incorporated throughout the airport region, connecting the major stakeholders around the world, namely customers, partners, suppliers and distributors (Kasarda, 2010, 2011, 2013).

2.2. Evolving Airport Experience

The conventional food and beverages as well as duty-free retail outlets are no longer the limited factors driving airport experience. Other aspects which include galleries and shopping streets, specialty retailers, exclusive restaurants, cultural attractions, live music and arts, may be a determining factor in the selection of an airline and its transit hub for transfer passengers. (Kasarda, 2010; Hsu, 2017; Zhou, 2011; Huston, 2015).

Table 2.1: Summary of the evolving airport experience around the world

Airports	Description
Asia Region	
Hong Kong International Airport	• Hosts a galleria (The Atrium) with more than 20 high-end designer clothing shops, • Gold exchange for international traders, and • Premiered the world's largest terminal commercial lounge.
Singapore Changi Airport	• Introduced cinemas, fitness centres, and a tropical butterfly park
Beijing Capital Airport	• Tenants include banks.
Incheon International Airport	• Disney theme park with planned casino hotels • Office buildings, health centre and hotels • Golf course, water park
Europe Region	
Amsterdam Airport Schiphol	• Casino and Rijksmuseum art gallery
Frankfurt Airport	• Has the world's largest airport clinic serving more than 36,000 patients yearly
Stockholm-Arlanda Airport	• Its chapel conducted nearly 500 weddings in 2009.
London Heathrow Airport	• Sofitel hotel with direct access to Terminal 5 via covered walkway, design measurements and guest amenities to any five - star facility in downtown London.
Charles de Gaulle International Airport (France)	• 130,000 m² business and conference development nearby, with a 3,000 seats convention centre, three exhibition halls and three 4-star hotels.
Dublin International Airport	• An automated people mover will shuttle business people and other travellers from the airport city complex to international gates in six minutes. • 700,000 m² airport-linked commercial complex consisting of office space targeted to internationally-oriented businesses and 200,000 m² of hotel, convention, and retail facilities.
America Region	
Dallas-Fort Worth International Airport	• Grand Hyatt Hotel that is linked to terminal • Serves as a fly-in virtual corporate headquarters for many U.S. businesses

Sources: Kasarda, 2010; Hsu, 2017; Zhou, 2011; Huston, 2015

2.3. Operation and Management Structure

Many airports (both public and private) have established business and/or real estate divisions to develop their landscapes and foster development beyond the borders of airports (Kasarda, 2010; Hsu, 2017; Zhou, 2011; Huston, 2015).

Table 2.2: Summary of operating structure for landside development of the airports around the world

Airports	Description
Asia Region	
Hong Kong International Airport	• Setting up business and real estate divisions to operate the retail terminal.
Beijing Capital International Airport	• Partnership arrangement with Airport City Development Corporation, Ltd., for the master development around the Airport, such as commercial, housing, education, exhibition, industrial and logistics.
Incheon International Airport	• Development via joint ventures with the private sector • AirCity includes business, hotels, office buildings, tourism, industry and logistics.
Europe Region	
Aéroports de Paris	• Setup a real estate division in 2003 for the role as a developer, contractor and project owner. • Also responsible for the management of commercial properties at international airports in Paris Charles de Gaulle and Orly.
Amsterdam Airport Schiphol	• A key revenue generating arm of its airport operator was Schiphol Real Estate, which operates on the basis of private sector principles.
America Region	
Dallas-Fort Worth International Airport	• Expansion of the commercial and real estate divisions • Form public-private partnerships to develop a total area of more than 5,000 acres, (office, retail, entertainment, and wellness etc.)

Sources: Kasarda, 2010; Hsu, 2017; Zhou, 2011; Huston, 2015

According to the aforementioned references as summarized in Table 2.2, the Airport City management model has transformed from the conventional model of civil engineering and airport management systems. It has evolved and incorporated the real estate and commercial development aspects, which has distinct strategic and skillset requirements, such as management, operations, finance and accounting, and business development.

2.4. Key Success Factors for the Development of Iskandar Malaysia, Johor

As the Aeropolis concept is relatively new in Malaysia, the study has extended the reference to the national mega projects, which has similar impact to KLIA Aeropolis, i.e. the development of Iskandar Malaysia (Iskandar) in Johor.

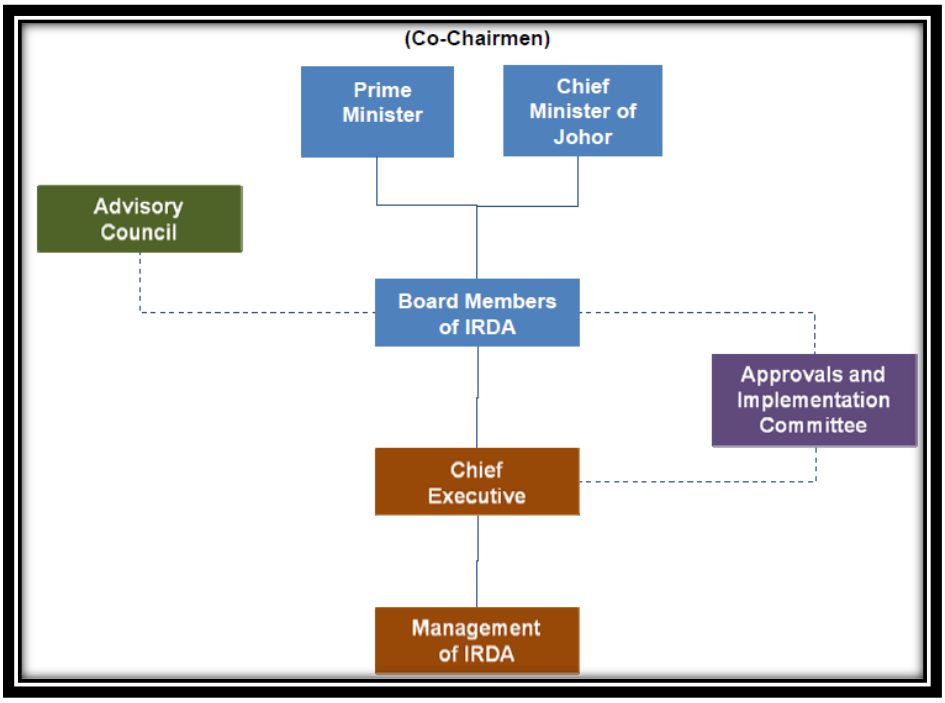
2.4.1. Introduction of Iskandar

Iskandar Malaysia, formerly known as Iskandar Development Region and South Johor Economic Region (SJER), is the main southern development corridor in Johor, Malaysia. It was established on 8 Nov 2006. The project is administered by Iskandar Regional Development Authority (IRDA). It was also introduced in the ETP and the Malaysia Plan.

In April 2018, the CEO of IRDA, Datuk Ismail Ibrahim, said up to December 2017, Iskandar recorded total committed investments of RM253 billion. IRDA is optimistic that it can achieve RM300 billion in investments in 2018 from sectors such as services, manufacturing and property, and before reaching to RM383 billion by 2025 (New Straits Times, 2018).

2.4.2. Iskandar Regional Development Authority (IRDA)

A special federal statutory body, the IRDA, co-chaired by the prime minister and Johor's chief minister, was set up to manage the development of Iskandar Malaysia to facilitate the implementation of projects, and lead it to the status of an international metropolis by year 2025.



Source: www.irda.com.my

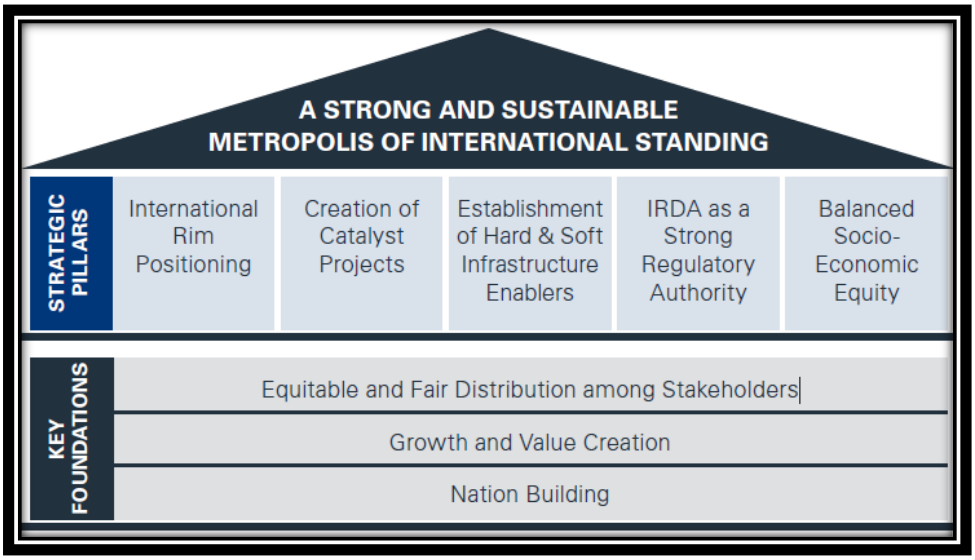
Figure 2.1: The Organization Structure of IRDA

2.4.3. Comprehensive Development Plan

A Comprehensive Development Plan (CDP) has been developed to drive the overall development framework for Iskandar. CDP includes strategies for the physical, economic and social development as well as environment.

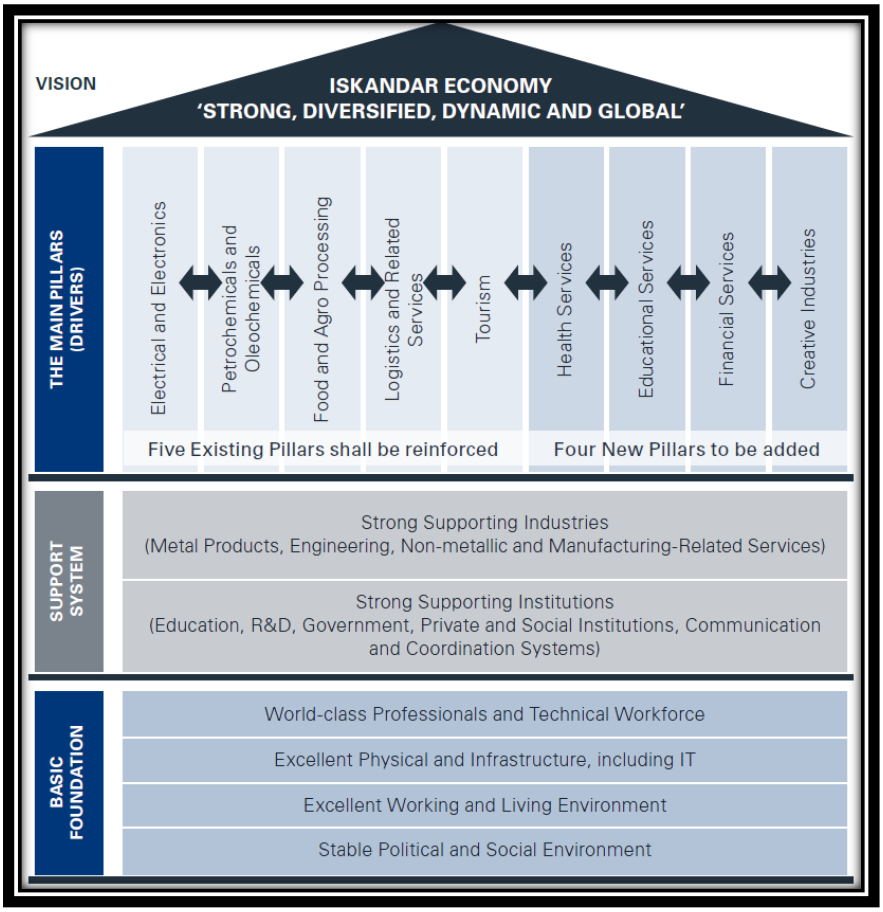
Under the CDP, the vision of Iskandar Malaysia is 'Development of a Strong and Sustainable Metropolis of International Standing', which deals with socioeconomic development based on five (5) strategic pillars anchored by three (3) key foundations.

Iskandar Malaysia's primary goal is to entice foreign direct investment, particularly in sectors that will enhance Malaysia's competitiveness, such as labour cost - competitiveness relative to its regional peers.



Source: www.irda.com.my

Figure 2.2: Comprehensive Development Plan of Iskandar Malaysia



Source: www.irda.com.my

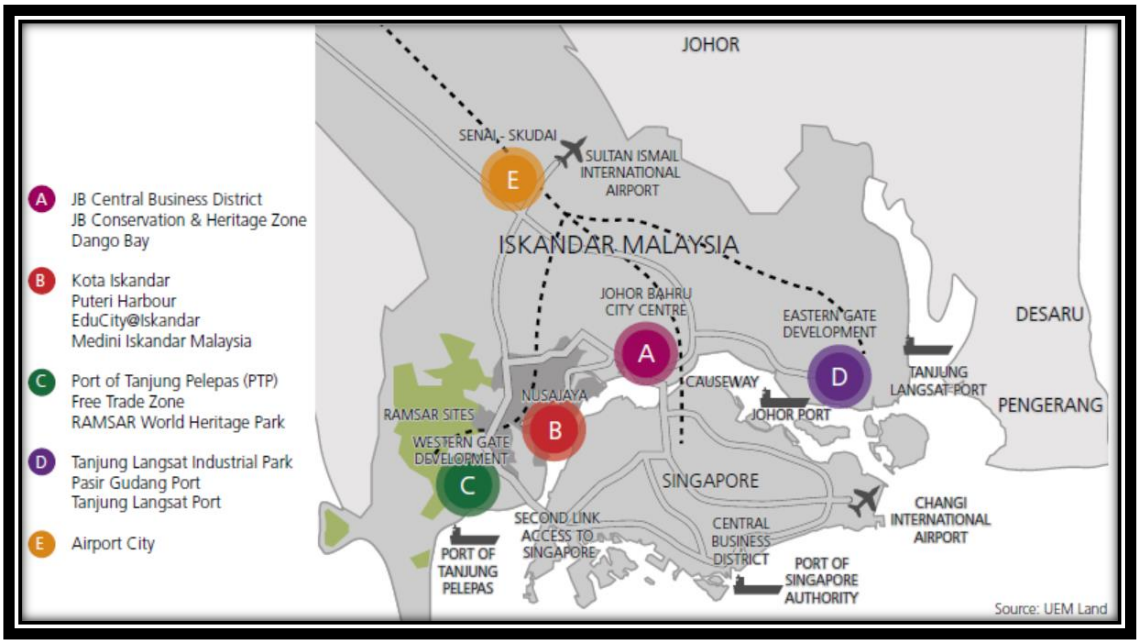
Figure 2.3: Iskandar Economy – Strong, Diversified, Dynamic and Global

2.4.4. Flagship and Catalytic Developments

Iskandar Malaysia has a total sustainable development area of 2,217 sq km (547,669 acres), double of Hong Kong's size and triple of Singapore's size. Iskandar Malaysia has five (5) signature and flagship development zones, namely Zone A, B, C, D, and E. Zone A and Zone B are focused on urban development, while Zone C, D and E are focused on transportation and logistics-related sectors (Wong, Yee, Quah, Irvin Seah, Terrence Wong, 2013)

Zone B – Nusajaya is the heart of Iskandar. Khazanah and UEM Land have a blank canvas where most of the key catalytic projects are carried out, including LegoLand, Puteri Harbour Theme Park, Puteri Harbour, Medini, and EduCity. Nusajaya has been positioned as a regional city with a variety of catalysts for global market demands. Nusajaya's main advantage is its proximity to Singapore, where land prices and the cost of doing business are significantly higher. The

centre of Nusajaya is located 27km or 23 minutes' drive from Senai International Airport and 31km or 25 minutes from the Johor Bahru city centre to the east and Port of Tanjung Pelepas to the south-west (Wong, Yee, Quah, Irvin Seah, Terrence Wong, 2013)



Sources: Wong, Yee, Quah & Irvin Seah, 2013; Terrence Wong, 2013

Figure 2.4: Five Flagship Development Zones in Iskandar Malaysia

2.4.5. Focus development in areas where existing and adequate infrastructure exists

Zone B – Nusajaya has always be the key focus of Iskandar Malaysia. The surrounding infrastructure has been improved by both federal and state government to attract the development of catalytic projects. For instances, Puteri Harbour Waterfront Development, Edu City, Medini, Kota Iskandar, Southern Industrial and Logistics Clusters and the International Destination Resort (Wong, Yee, Quah, Irvin Seah, Terrence Wong, 2013)

Table 2.3: Timeline for Catalytic Developments in Nusajaya

2010	2011	2012	2013	2014
Nusa Bayu launch	Anjung Mall (East Ledang)	Lifestyle Retail Mall @ Medini	University of Southampton	Legoland Hotel
Private Marina	Newcastle University Medicine Malaysia	Traders Hotel	Netherlands Maritime Institute of Technology	Johor Premium Outlets (Phase 2)
Columbia Asia Hospital	Coastal Highway	Medini North	Gleneagles Medini	Agila Biotech Facilities
Bio Xcell	Johor Premium Outlets	Malborough College	Kota Iskandar (Phase 2 & 3)	1Medini
	Northern Estuary launch	Legoland Theme Park	Pinewood Studios	Sunway property projects
		Medini Square	Legoland Water Theme Park	MSC Cyberport
		Puteri Harbour Family Theme Park	Management Development Institute of Singapore	
			Raffles University Iskandar	

Sources: Wong, Yee, Quah, Irvin Seah, Terrence Wong, 2013

This is unsurprising given Nusajaya's ready infrastructure and strategic location within Johor and its proximity to Singapore. It has direct access to five seaports in Johor and Singapore – Port of Tanjung Pelepas, Johor Port at Pasir Gudang, Tanjung Langsat Port, Jurong Port and the Port of Singapore Authority.

The city is 20 minutes from Johor's Senai International Airport and a 45-minute drive from Changi International Airport in Singapore. It also only takes 15 minutes by car to get to Singapore via the Tuas Second Link.

With the foundation and infrastructure already laid down from 2006-2010, 2011 through to 2018 was all about growth and expansion for Iskandar. As critical mass improves, Nusajaya will lead the charge and is expected to see continued robust commercial activities and overwhelming response for its property launches.

2.4.6. Participation of Singapore's sovereign wealth fund and reputable developers in Iskandar Malaysia

The participation Temasek Holding in Iskandar Malaysia represented the first large-scale investment by Singapore, marking at as a significant milestone for the development. This could encourage the confidence level and subsequently participation by Singapore private investors. As compared to Singapore with rising land prices on the back of scarce land supply, as well as the stringent restriction on property and foreign labour, it drives the intentions of businesses to relocate their operations to Johor and Iskandar Malaysia, with the competitive advantages on lower land prices with infrastructure readiness (Wong, Yee, Quah & Irvin Seah, 2013).

Meanwhile, established local reputable developers, for instances UM Land, Sunway, Mah Sing, have also participated in Iskandar Malaysia through the investment in Medini. Even though Medini sits on a leasehold land, the special economic zone incentives are the key attractions for investments, such as an exemption from withholding and corporate tax on royalties and technical fees paid to non – residents for a period of ten (10) years and lower personal income tax for qualified knowledge workers (Wong, Yee, Quah & Irvin Seah, 2013).

The participation of Singapore's sovereign wealth fund - Temasek, strategic investment fund of the Government of Malaysia - Khazanah and local reputable developers are the key drivers in boosting confidence and investment appetite in Iskandar Malaysia.

Table 2.4: Key Developers in Iskandar Malaysia

Developer	Location	Land (acres)	GDV (RM bil)	% of total GDV/RNAV
Keck Seng	Johor Bahru, Pulai, Ulu Tiram	1,850	n.a.	24
Mulpha	Gelang Patah (near Nusajaya)	600	2	n.a.
Daiman	Ulu Tiram, Senai, Kota Tinggi	2,217	n.a.	100
Sunway	Medini, Sg Pendas (near Medini)	1,770	30	25
UEM Land	Nusajaya	11,049	31	88
Mah Sing	Tebrau, Pulai, Medini, Tg Pelepas	433	2	14
Dijaya	Danga Bay, Tebrau	316	7	18
KSL	Johor Bahru, Ulu Tiram	1,500	2	46
Tebrau Teguh	Tebrau	1,200	n.a.	100
IWH	Danga Bay, Tebrau, Johor Bahru	4,500	80	100
E&O	Medini	210	3	6
SP Setia	Nusajaya, Tebrau	1,032	17	24
Crescendo	Tebrau, Bandar Cemerlang, Kota Tinggi	2,994	n.a.	100

Sources: Wong, Yee, Quah, Irvin Seah, Terrence Wong, 2013

2.4.7. Incentives in Iskandar Malaysia

To attract foreign investments and be competitive, the federal government has granted special incentives to six key sectors in Medini (education, financial advisory & consulting services, healthcare, logistics, tourism and creative industries) such as a ten-year exemption from corporate tax and withholding tax on royalties and technical fee payments to non-residents, and the freedom to source for capital and labour globally (Batley, 2006; Ginevičius & Šimelytė, 2011).

A lower 15 per cent personal income tax for five years for qualified knowledge workers in Iskandar Malaysia (versus a maximum 26 per cent in other parts of Malaysia) was introduced as well.

Table 2.5: Types of Incentives and Support Package (ISP) in Iskandar

Existing Incentives	Customized Incentive	Initial ISP in Iskandar
• These are existing tax incentives offered to various industries and approved activities • These incentives are enacted in the Promotion of Investments Act (PIA) 1986 as well as through various gazette orders pursuant to Section 127 of Income Tax Act • Common ones are Investment Tax Allowance (ITA), Reinvestment Allowance (RA) and Pioneer Status, etc	• For investors who meet prerequisite criteria set out by MIDA and/or MOF • Bilateral in nature (based on request and consultation) with no specific guidelines • Customised based ultimately on the projected net economic benefit enjoyed from the investment	• Recently announced by YAB Prime Minister • Designed to encourage or kick-start early investment into Iskandar focusing on the targeted 6-services based sectors at designated nodes • Incentives are: - a) Corporate tax exemption for 10 years b) Exemption from FIC ruling c) Allow to source capital globally d) Can employ foreign workers without restrictions

Source: www.irda.com.my

Chapter 3: Research Methodology

3. Research Method

The study was conducted through a primary research method, namely interviews with the Management of Malaysia Airports, which leads the development of the KLIA Aeropolis (collectively known as Management) in January 2019.

Open-ended questions are developed to guide the discussion with the Management, and to gather answer in depth and allow for original, unique responses, without being limited by multiple choice or a 'yes' or 'no' option. The key questions include but not limited to the following:

a) When and how was the concept and masterplan of KLIA Aeropolis initiated?
b) What are the key components and clusters of KLIA Aeropolis? And why?
c) What is the development strategy and business model of KLIA Aeropolis?
d) What are the planned development phases of the KLIA Aeropolis?
e) What is the population around KLIA?
f) What are the on-going developments around KLIA?
g) What is the synergy between KLIA Aeropolis and the existing airport business?
h) What is the operating and management structure of the KLIA Aeropolis?
i) What is the condition of the existing infra structure of the KLIA Aeropolis?
j) What is the infra planning of the KLIA Aeropolis?
k) What are the expectations and support from both state and federal government on the KLIA Aeropolis?
l) Are there any customised incentives provided to KLIA Aeropolis?
m) How does the team market and attract the players or investors to KLIA Aeropolis?
n) What is the estimated capex for the KLIA Aeropolis?
o) What is the progress of KLIA Aeropolis?

This will couple with industry, market researches, and references to other major developments in the country or within the region, to be conducted to determine the critical success factors in the development of the KLIA Aeropolis.

The background of the Management is summarized in the table below:

Table 3.1: The Background of the Key Respondents

Position	Experience / Roles and Responsibilities
General Manager, Land Development	He joined Malaysia Airports in 2008 and held various roles and responsibilities across the company, i.e. Group Corporate Planning, Land Development and Transformation Management. He was also involved in crafting the Runway to Success 2020 (RtS2020) Key achievements include the joint venture project with Mitsui Fudosan on the Kuala Lumpur 1st premium outlet, and joint venture with the subsidiary of Alibaba Group – Cainiao Network on its 1st eWTP Hub outside China & Regional E-Commerce hub at KLIA Aeropolis DFTZ Park. He is a certified International Airport Professional (IAP) and a Master of Business Administration (MBA) holder with a Degree in Civil Engineering from University Malaya.
Senior Manager, Infrastructure Planning and Land Administration	Has been working with Malaysia Airports for more than 15 years, the roles and responsibilities including plan and organize market studies, project feasibility and viability analysis, formulation of workable strategies which include business plans and marketing plans and ensure successful implementation of the plans to maximize revenue generation. To obtain approvals from internal and external approving authorities and formalize the proposed land/property ventures and finalize business agreements. To solicit processes, address issues, monitor performance and progress by fostering close relationship with government agencies, consultants, strategic partners, property players, stakeholders and all related authorities for the successful implementation of the approved business ventures.
Manager, Investment and Portfolio Management	The key roles and responsibilities are to undertake analysis of investment strategies, risk frameworks and performance measures for the deals at KLIA Aeropolis and airports' landbanks. Provide direction and oversight on investment or JV opportunities on real estate developments which aligns to the Masterplan and execution of JV strategy and deals for KLIA Aeropolis and landbanks at airports.
Manager, Business Development	Encompasses all overall management and operations of Commercial Activities and Contracts including developing and implementing business plans and strategies, communications, advertising and statutory and legal requirements. Responsible to execute and initiate relevant marketing and promotional strategies towards securing new and potential business to the company.

Source: Management, 2019

Chapter 4: Analysis and Findings

4. Analysis and Evaluation

This chapter focuses on the analysis on overall development of Greater Kuala Lumpur, existing and proposed infrastructure, i.e. major highways, expressways and railway, as well as the surrounding development and population, and the respective implications for the development of the KLIA Aeropolis.

The analysis and evaluation section will be concluded with a SWOT analysis framework for the KLIA Aeropolis.

4.1. Overall Development of Greater Kuala Lumpur

An understanding on the overall development of Greater Kuala Lumpur (GKL) as well as its major growth driver will provide a more comprehensive perspective on the development of the KLIA Aeropolis.

Based on the discussion with the Management, broadly speaking, there have been three (3) major historical greenfield growth fronts branching out from Kuala Lumpur, namely the North Growth Corridor, West Growth Corridor and South Growth Corridor.

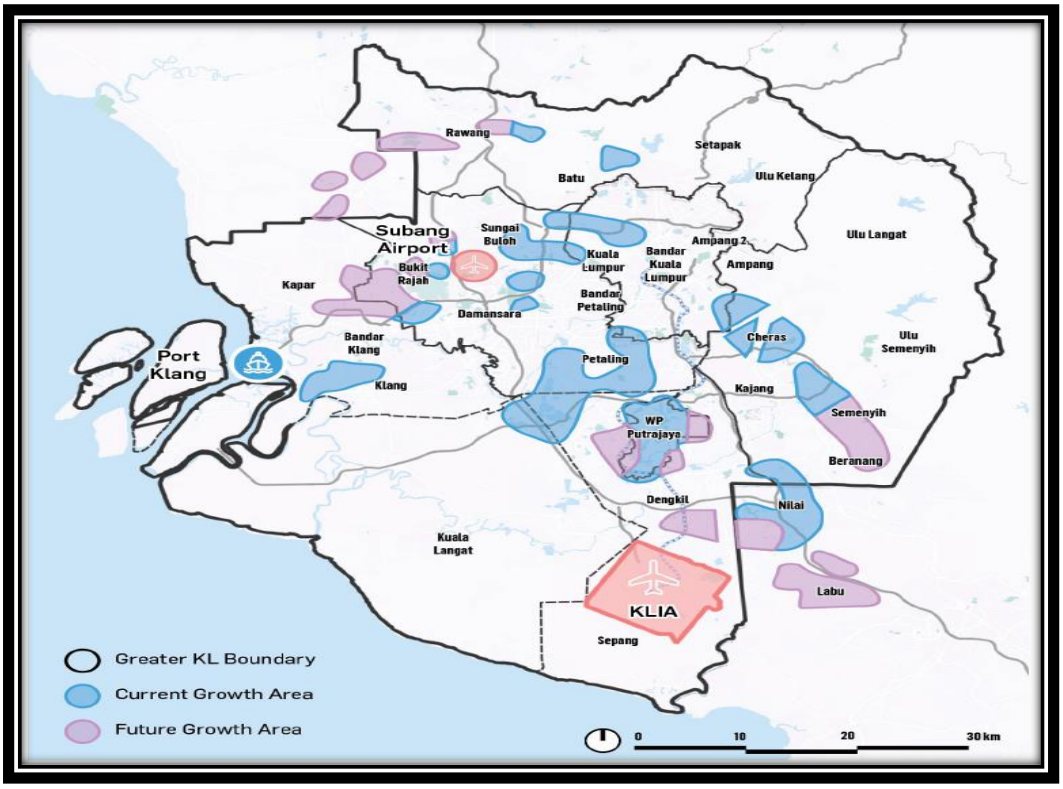
Table 4.1: Major Historic Growth Fronts of Greater Kuala Lumpur

Region	Description
North Growth Corridor	Historically the growth occurred through Sungai Buloh and Batu, but more recently extending towards Rawang creating a natural northerly extension to the city. Access to Wilayah Persekutuan Kuala Lumpur (WPKL) and Damansara has been a key driver of this growth as residents have good access to employment opportunities.
West Growth Corridor	Klang and Shah Alam have traditionally been key industrial areas within the West Growth Corridor. Klang had expanded thanks to its very strong infrastructure as well as a job creating port. Shah Alam, which is located between Klang and WPKL has several reputable developers which have moved into the city.
South Growth Corridor	Growth to GKL's south has forked into two directions over the last decade or so and the growth front has been widespread. The development of Putrajaya and Cyberjaya have driven growth south away from the city.

Source: Management, 2019

Simultaneously, Nilai's development including clustering of industrial land has begun to create job and residential opportunities. Puchong has been another beneficiary of growth. More recently, and with the introduction of KLIA's expansion and growth, there has been an increasing tendency for industrial development clustering around the precinct – most notably the expansion of Hartelaga's Next Generation Integrated Glove Manufacturing Complex (NGX).

Generally, the growth and development in GKL has been dictated by the topography of the region. Land to the east and northeast of the city remains relatively inaccessible and too steeply gradated for it to comprise part of the urban sprawl of the city. Subsequently, growth has tended to the west, north and south.



Source: Management, 2019

Figure 4.1: Major Historic Growth Fronts of Greater Kuala Lumpur

4.1.1. Implications for the KLIA Aeropolis

The growth and development of GKL in recent years has some important implications for the KLIA Aeropolis as described below:

Table 4.2: Recent Development of Greater Kuala Lumpur

Key Implications	Description
Residential development can occur in relatively isolated locations	Rawang has seen some successful master planned communities develop, as has Nilai and Bukit Rajah. However, these have typically been of a scale that the local employment base can support – the further away from jobs, the smaller the supportable population.
Commercial development follows residential development very closely	Commercial development sitting in isolation from residential suffers from a lack of workers and therefore employment demand. This is a generally understood issue – workers like to be near their place of work (to the extent possible).
This is accentuated by the fact that the Malaysian economy is so reliant on small to medium enterprises (SME)	These businesses tend to be more locally focussed, and thereby more likely to be located near to their workforce and/or owner.
Industrial land has congregated in large agglomerations where possible	More importantly however, has been the fact that industrial land has located near the infrastructure that is most supportive of industrial development – the port, the airport and the major expressways

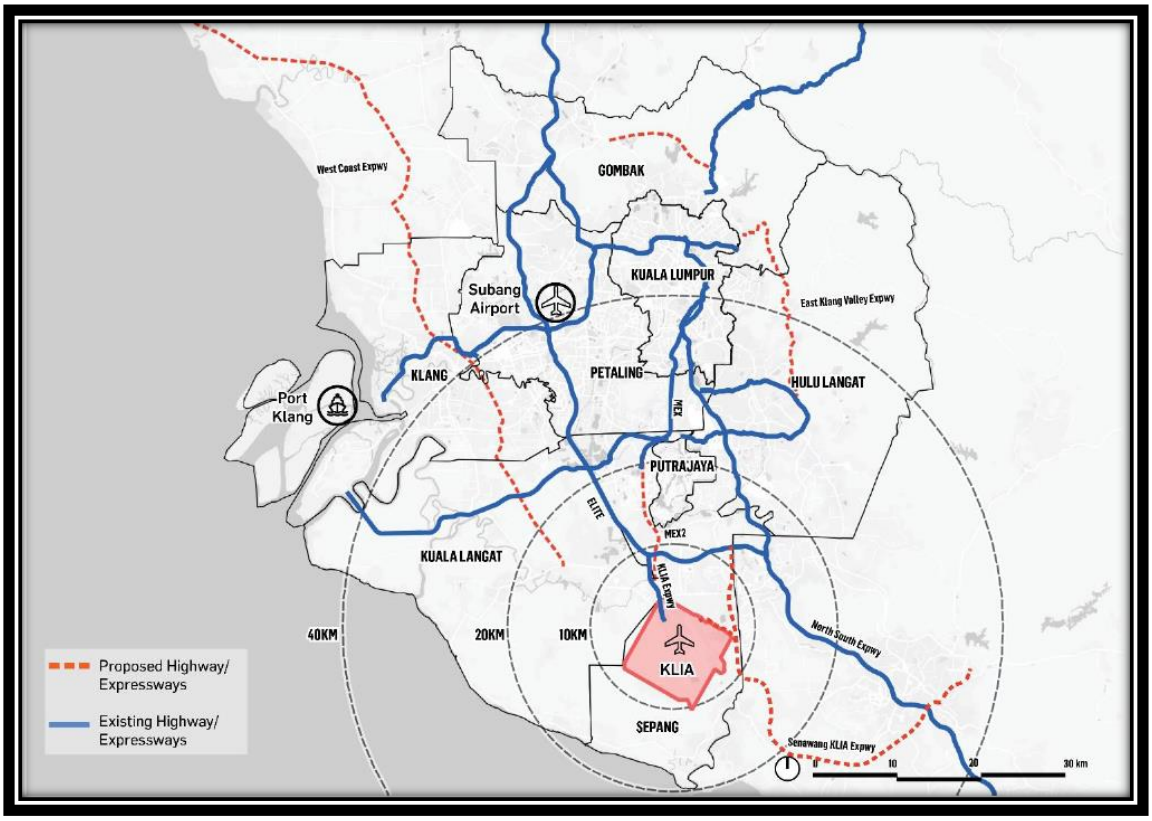
Source: Management, 2019

Based on the points above, KLIA is not currently well located for commercial development. It lacks the local population and white-collar workforce to support commercial development. The airport may offset this to some degree but not to the extent that it offsets the overall weakness. From a retail perspective, a lack of local catchment makes retail development risky. Even the most 'destinational' retail relies on its local catchment.

Industrial development in KLIA fits more neatly with the trends historically seen. Road infrastructure to KLIA is strong, and it is better placed for blue collar workers than white. There is real evidence supporting this – industrial development is already occurring in the area. The long-terms support ongoing growth in development in the area between KLIA, Dengkil and Seremban.

4.2. Regional Economic Planning and Infrastructure

In this section, the study will look at more detail in some of the drivers of future growth from a planning and infrastructure basis. The figures below show major existing and proposed major roads and railway routes that will influence KLIA in the future.

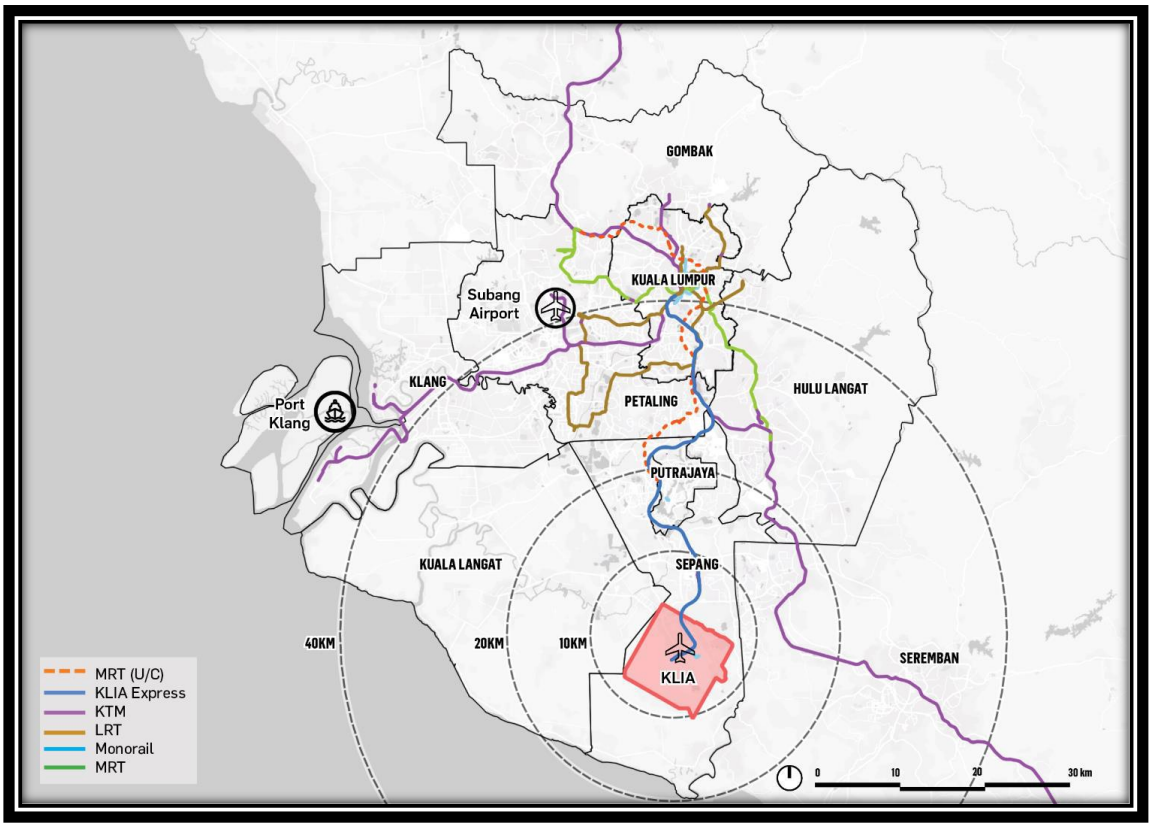


Source: Management, 2019

Figure 4.2: Existing and Proposed Major Highways and Expressways

The primary access point for the majority of KLIA's land parcels are from the KLIA extension highway which in turn connects it to the North-South Expressway Central Link (ELITE), giving direct and easy access to GKL region including central Kuala Lumpur, Port Klang and surrounding areas. KLIA is connected to the surrounding developments in the east via the Shah Alam Expressway (KESAS), giving it direct access to developments around Nilai and further to the North South Expressway (PLUS).

There are several proposed highways and secondary roads will aid access to the surrounding region, including the extension of the Maju Expressway (MEX), would potentially give KLIA better access to developments in Cyberjaya, Putrajaya and the surrounding developments. The proposed West Coast Expressway (WCE), currently being developed only till Banting, if extended further south to KLIA, will provide better access to upcoming developments not only in Banting but also Port Klang and surrounding developments. The Paroi-Senawang-KLIA Expressway (SKLIA) will help to improve connectivity between Seremban and KLIA in comparison to the present route of travel between Seremban and KLIA.



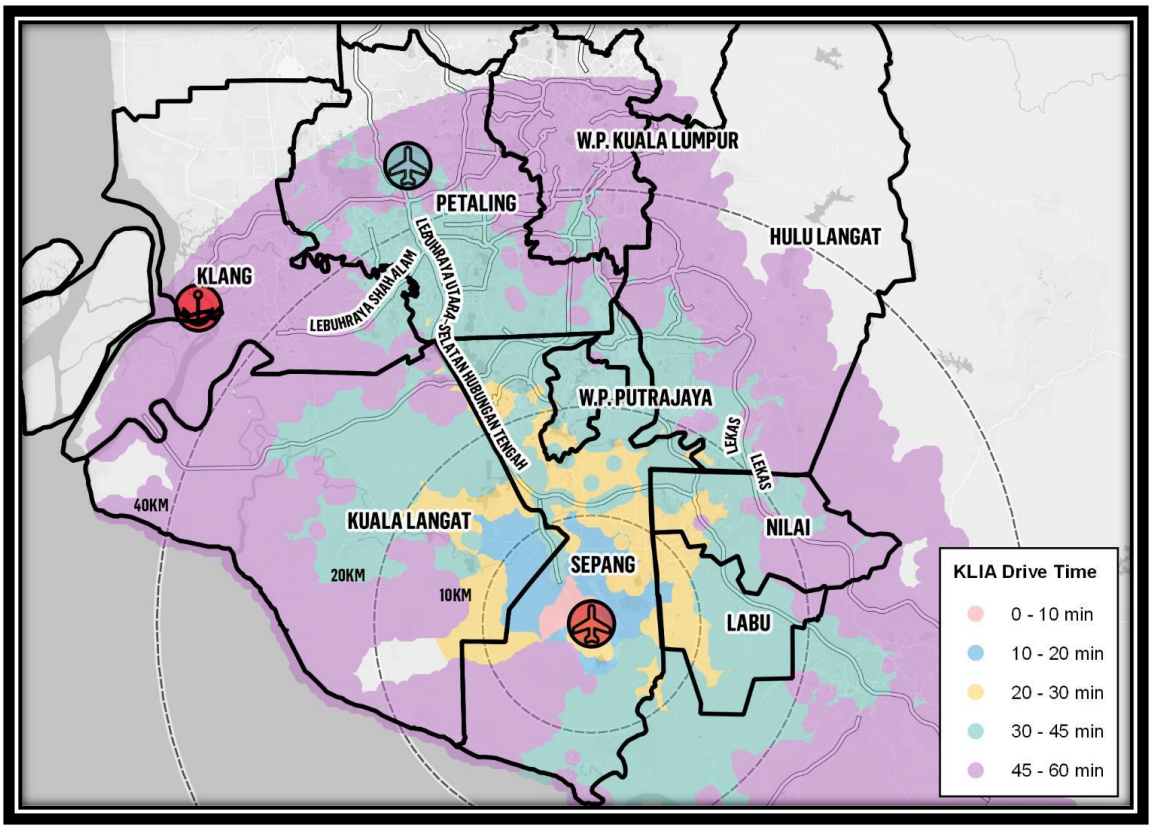
Source: Management, 2019

Figure 4.3: Existing and Proposed Major Railways

Currently the KLIA is connected by rail to the Kuala Lumpur city via KLIA Express which provides direct connections to KL Sentral, as well as KLIA Transit that connects to several key locations between KLIA and KL Sentral (including Cyberjaya and Putrajaya).

4.3. KLIA, Sepang Overview and Surrounding Developments

KLIA, which is located within Sepang District is approximately 55 km drive south of WPKL, 39 km drive south of Putrajaya and a 62 km drive south-east of Port Klang. The majority of the GKL region is reachable in one hour, subject to traffic conditions.



Source: Management, 2019

Figure 4.4: Estimated Drive Times to KLIA

KLIA is located on the fringe of one of GKL's largest future growth corridors. It has seen a large amount of development over the past few years of all different typologies – commercial within Cyberjaya and Putrajaya, as well as large scale residential and industrial development. As a growth corridor it has certain advantages. Its location near the seat of Government, strong road and rail connections, and access to the airport, and growing working population should see solid growth continue.

4.4. Population Overview in KLIA

The fundamental driver of land demand in any market is population growth. Population growth supports demand for housing as well as space (industrial or commercial) for employment. This section provides an overview of the future population growth patterns we expect to see in GKL, and how this will influence the development of the Southern Corridor.

As guided by Management, with many residential developments coming into the market in surrounding areas the growth rate of KLIA area will likely be higher than the GKL area. The population in the GKL area is expected to grow at approximately 1.26 per cent per annum between 2018- 2040, rising from 7.74 million in 2018 to 10.19 million in 2040; while the population in the KLIA area growing at approximately 3.00 per cent between 2018 – 2040, from 480,000 in 2018 to 920,000 in 2040 (Management, 2019).

The speed at which the population of both GKL and the KLIA local region grows will have a marked impact on the capacity of KLIA to develop.

Table 4.3: Estimated Population Growth

	Population (milion)			CAGR*** 2018-2040
	2018	2030	2040	
GKL*	7.74	9.16	10.19	1.26%
KLIA**	0.48	0.73	0.92	3.00%

** GKL: GKL plus Labu and Nilai*

*** KLIA: KLIA Aeropolis, Sepang, Putrajaya Nilai and Labu*

**** CAGR: Compound Annual Growth Rate*

Source: Management, 2019

4.5. SWOT Analysis

This chapter focuses on the analysis and evaluation, using SWOT analysis framework, namely the strengths, weaknesses, opportunities and threats.

A) Strengths

4.5.1. Market (Strengths)

GKL remains a high growth city, achieving high level of population growth and underlying economic growth. It is the engine room of Malaysia's economy, and is well serviced by a strong network of expressways, providing good regional vehicular connectivity.

KLIA itself has extremely well serviced by expressways, particularly the ELITE, the MEX and North -South Expressway. On railway, the KLIA Express provides very good rail connectivity to KL Sentral, as well as multiple stations in between. KLIA is a key part of Sepang Government's development plans, with a focus on economic and tourism activities. The shore development to the south should support the region from a tourism perspective, while the development of more traditional townships through the central development corridor will provide KLIA with the employees it requires for its development.

4.5.2. Development (Strengths)

KLIA being relatively close to Putrajaya, Malaysia's seat of government, which has seen a large amount of development over the past few years of all different typologies – commercial as well as large scale residential and industrial development.

On the back of its unique status as the national airport, it provides very good exposure to visitors (both local and foreign). KLIA's commercial assets are currently performance quite well, namely Sama Sama Hotel, The Mitsui Outlet Mall, and the Gateway@KLIA2.

The strategic collaboration with a very strong and recognisable Alibaba on the EWTP / DFTZ project, together with the solid base of blue-collar workers in the region will improve the commercial viability of industrial development in KLIA.

B) Weaknesses

4.5.3. Market (Weaknesses)

The area immediately surrounding KLIA is sparsely developed, with relatively lower population within the area. This has significant implications for commercial development that is reliant on a local catchment (especially retail).

The various land owners appear to be preparing masterplans with limited understanding of the broader economic and planning imperatives. This has resulted in master plans that appear unbalanced in terms of regional land use.

4.5.4. Development (Weaknesses)

The inability to offer free-hold land is a major limitation. It limits the types of ownership structure that can be used, which limits the types of investors who will be interested. It effectively precludes any type of strata sales and may make it difficult for Real Estate Investment Trust (REIT) type structure to be involved from an ownership perspective.

C) Opportunities

4.5.5. Market (Opportunities)

The federal and local Governments are pushing the development of tourism throughout Malaysia, and KLIA is well placed to benefit from this, both from its position as the national airport, as well as its co-location with the emerging tourism precinct to its south. KLIA has been achieving consistent growth in passengers, which will present numerous opportunities for Malaysia Airports, including additional hotel development, retail and possibly a theme park.

According to Malaysia Airports, airports in Malaysia registered a 2.5 per cent growth over 2017 with 99.0million passenger movements. International sector recorded 51.7million passenger movements with a growth of 4.5 per cent while domestic sector recorded 0.4 per cent growth with 47.4million passengers. International passenger movements continued to remain robust retaining more than 50 per cent market share since January 2017 (Management, 2019).

Meanwhile, KLIA is part of one of GKL's largest scale growth corridors (Southern Growth Corridor). Anchored by Putrajaya, Cyberjaya and numerous township developments, this region is set to see dramatic growth in the coming decades. The future extension of the MEX expressway, and potentially the West Coast Expressway will further integrated KLIA into the fabric of GKL.

The local region will continue to follow a typical development pattern. Lots of new residential development will attract a first wave of residents. Many of these will continue to commute to work in more central locations. Over time, however, the area will become more self-sustaining. Industrial employment will probably grow most quickly at the start, with higher order commercial employment following.

There has in recent years been a push towards better quality industrial development is emerging in the locale, evidenced by Coca-Cola's bottling plant and Alibaba's investments on the EWTP / DFTZ project next to the airport.

Supported by all these catalytical industrial developments, coupled with the higher quality residential development that is occurring in the region, such as Gamuda Cove, Serenia City, Sunsuria City, there is potential for an emerging white-collar workforce which will support the population and absorption of the commercial developments in the area.

4.5.6. Development (Opportunities)

Based on the surrounding better-quality industrial development is emerging in the locale, evidenced by Coca-Cola's bottling plant and Alibaba's investments on the EWTP / DFTZ project, the land use that has the highest success likelihood is clearly industrial. The site has most of the attributes of a strong industrial precinct.

Over time, driven by the increased number of passengers and visitors to Malaysia / KLIA, there will be opportunities to expand on KLIA's hotel offer. Furthermore, as the surrounding region developments, locally generated demand for hotel rooms will increase which could be supplied at KLIA.

Meanwhile, an integrated transport terminal (or intermodal transport hub) could have a major catalytic impact. KLIA already has two major elements – the airport and the KLIA Express. If greater freight infrastructure could be provided this could help support broader growth of the region (Management, 2019).

One of the drivers to spur population growth is via the development tertiary education. Over time demand for tertiary education spaces will grow in the region, envisage an 'education city' serving the entire southern corridor. The setting up of Xiamen University Malaysia in Bandar Sunsuria could be a good reference. The campus covers an area of 150 acres, and the total floor space planned is 470,000 m^2 built up at a cost of RM1.3 billion. The first enrolment of 500 students was expected for Academic Year 2016, and the number will grow to 5,000 in 2022 and reach a maximum of 10,000 students (Management, 2019).

Incheon International Airport, which consists of Disney theme park with planned casino hotels, office buildings, health centre, hotels, golf course and water park, serves as a good reference to promote business-tourism and medical-tourism at KLIA. There could also be an opportunity to development medical services at KLIA, potentially the development of dual-purpose hospital services – targeting both medical tourists as well as operating as a regional hospital for the broader Nilai / Sepang / Labu area. With the increased population and potential from business-tourism, there could possibly drive the development of a catalytical theme park on the site as well, which will attract enough visitation.

D) Threats

4.5.7. Market (Threats)

Malaysia has lost tourism market share to other countries, particularly Thailand, in recent years. Failure to turn this around could result in significantly lower tourism growth and number of passengers and visitors into Malaysia and KLIA.

Malaysia's political situation has, in recent years, impacted its economic performance. The future political situation, including the willingness to implement positive economic policies will certainly impact the growth of the

Southern Corridor. This will potential a risk that growth does not occur at the rate that is expected for numerous reasons. Attention will be required on over-development beyond what the market can absorb, to manage the issue of oversupply.

There continues to be a general preference for office space that is close to the city, i.e. GKL, reflecting the amenity this affords. The viability of commercial development in outer suburban, such as KLIA and Sepang areas, is generally less feasible (Management, 2019).

4.5.8. Development (Threats)

The commercial land market has an excess of land available. It is conceivable that even without further supply at KLIA, there will still be surplus available commercial land at least in the immediate near future. Commercial development is highly reliant on being able to attract white-collar workers. KLIA is relatively isolated from white collar workers which will make commercial development more difficult.

Malaysia Vision Valley (MVV) is a 30-year mega-project headed by Sime Darby Property Bhd to develop an area of 379,000 acre (153,000 hectare), or nearly twice the size of Singapore, and is much-touted as the country's new economic corridor. The project covers a large swath of land from Sepang in Selangor and straddles the “new growth triangle” districts of Seremban, Nilai and, yes, Port Dickson. With the relaunch of MVV, there will be 2,838 acres of land across Labu, New Labu, Hamilton and Kirby that will be in direct competition of KLIA’s land supply and could also add to the challenge of oversupply.

There is little evidence of airports being strong catalysts for commercial development, particularly of the scale available at KLIA. The lack of nearby population means significant traditional retail development not attached to the airport will carry significant risk. Malaysia Airports’s ongoing focus on Subang Airport for airport related industrial and light industrial development removes a significant avenue of development for KLIA (Management, 2019).

Chapter 5: Conclusion and Recommendation

5. Conclusion and Recommendation

The Recommendation and Conclusion is the final chapter of this study. The report is concluded with the detailed discussion of all the nine (9) critical success factors being identified and recommended for KLIA Aeropolis, which can be categorised into the three (3) thrusts:

- Thrust one (1): Government Support and Alignment,
- Thrust two (2): Strategic Alliances with Reputable Developers and Partners,
- Thrust three (3): Well-defined Development Plan and Catalytic Developments

It's recommended by the study that, among all, Thrust 1: Government Support and Alignment, contains the most critical success factors for the development of KLIA Aeropolis. The success of Iskandar development reinforces the importance of the role of government in the mega development projects. Therefore, the predominant and immediate focus of Malaysia Airports should be leveraging on the influence of its majority shareholders Khazanah to embrace the development of KLIA Aeropolis as a national agenda. Concurrently, Malaysia Airports should pursue discussion and negotiation with government on land lease extension, incentives with the government, as well as the support on infrastructure development and connectivity.

Thrust 2: To establish the partnership with the reputable developers and partners, for instances the potential reputable developers are SP Setia, E&O, WCT, Sunway, Mah Sing, UM Land etc, and the potential strategic partners could be from infrastructure and construction, healthcare, theme park, and sustainable energy development, for the development of the KLIA Aeropolis.

Thrust 3: Well-defined Development Plan and Catalytic Developments, including marketing positioning for KLIA Aeropolis, execution strategy (land uses and development phasing), intermodal transport hub and flagship and catalytic developments.

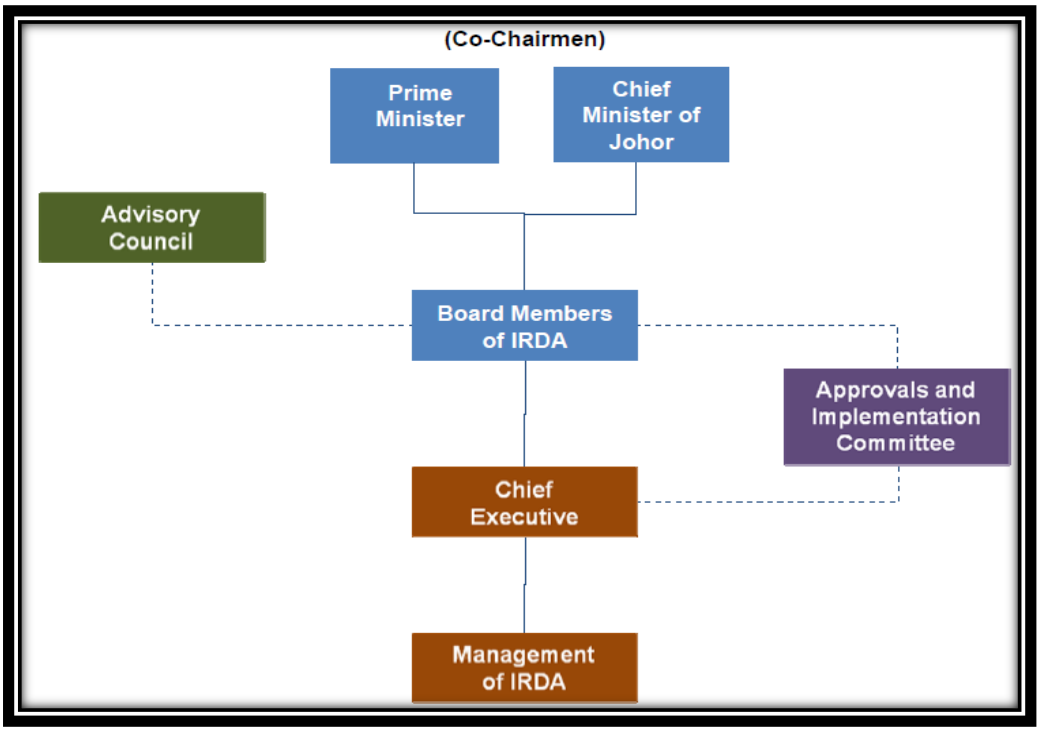
Table below summarizes the Critical Success Factors in the Development of KLIA Aeropolis for this study. The Conclusion and Recommendation is the final chapter of this study. The report is concluded with the detailed discussion of all the key success factors in the remaining sections.

Table 5.1: Summary of the Critical Success Factors in the Development of KLIA Aeropolis

Objectives of KLIA Aeropolis	To achieve commercial sustainability for developmental assets and deliver economic impact and benefits to Malaysia, i.e. **GDP contribution of RM30 billion** with **56,000 jobs created** over a 15-year period.
Thrust 1: Government Support and Alignment	
1) Embracing it as a national agenda and forming a dedicated authority to drive the execution • Introduced in the Economic Transformation Programme and the Malaysia Plan • Creation of a strong regulatory authority, like IDRA in Iskandar • Participation of government funds in the catalyst infrastructure and development projects	
2) Land Ownership Structures • Extension of lease tenure • More lenient land ownership structures to facilitate commercial and industrial developments	
3) Incentives for Business • Special incentives and support package to KLIA Aeropolis	
4) Support from the government on infrastructure development and connectivity • Highways, road, infrastructure and connectivity	
Thrust 2: Strategic Alliances with Reputable Developers and Partners	
5) Attract the participation of reputable developers and strategic partners in KLIA Aeropolis • Reputable developers – SP Setia, E&O, WCT, Sunway, Mah Sing, UM Land etc. • Strategic partners – infrastructure and construction, healthcare, theme park, and sustainable energy development	
Thrust 3: Well-defined Development Plan and Catalytic Developments	
6) Market Positioning – "KLIA as the logistical heart of Southern Corridor" • Logistical heart of Southern Corridor, connecting Cyberjaya, Nilai, Seremban and Banting • Linkage to Port Klang – concept of intermodal hub	
7) Well-defined execution strategy – land uses and development phasing • Immediate – Industrial Development on area where existing and adequate infrastructure exists • Medium to Long-term Focus – Commercial Development / Offices	
8) Intermodal Transport Hub • One-stop freight hubs with transport and logistics facilities such as cargo processing, freight redirection and storage utilising, intermodal transportation and enhanced value-added activity	
9) Flagship and Catalytic Developments • To drive economic and population growth, as well as to attract investments and critical mass • Hospital and wellness centre, bulky goods and car showrooms, tertiary education, theme park	

5.1. Embracing it as a National Agenda and Forming a Dedicated Authority to Drive the Execution

Refer to Iskandar Development Region (Iskandar), the project was also introduced in the Economic Transformation Programme and the Malaysia Plan. One of the key success factors of Iskandar is the creation of a strong institutional framework and regulatory authority – Iskandar Regional Development Authority (IRDA), a joint and coordinated approach between federal, state and local governments, co-chaired by the Prime Minister and Johor's Chief Minister.



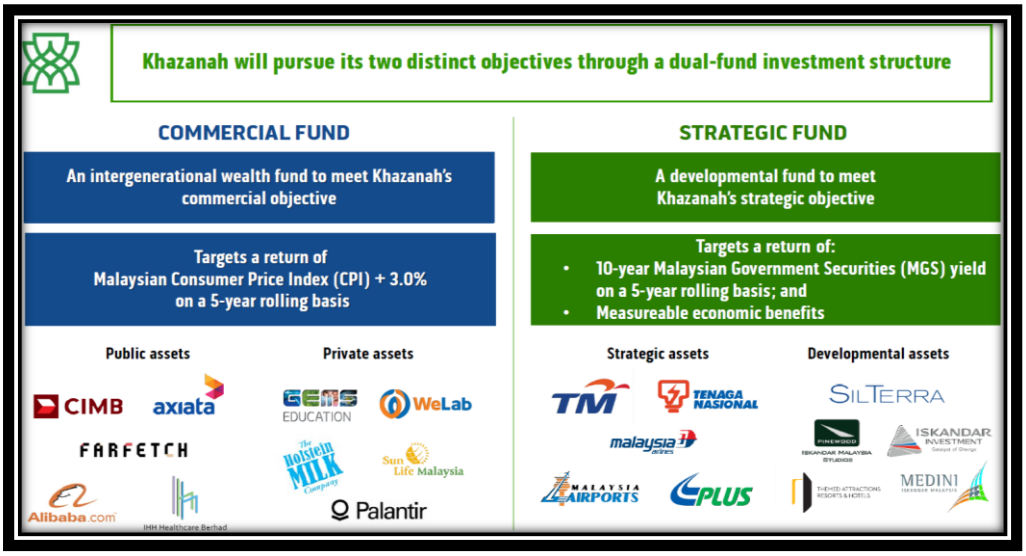
Source: www.irda.com.my

Figure 5.1: The Organization Structure of IRDA

Khazanah Nasional Berhad (Khazanah), the sovereign wealth fund of the Government of Malaysia, was the planner for Iskandar. Catalyst infrastructure and development projects, such as Southern Johor Industrial Logistic Cluster, Waterfront City, Medical Hub and EduCity, have been identified as investment opportunities by Khazanah.

Khazanah is also the single largest shareholder with an approximately 33 per cent stake in Malaysia Airports. In March 2019, Khazanah launched its Refreshed Mandate 2019, where Malaysia Airports is being positioned as one of its strategic assets, of which the core investment objectives for these assets are, i) to generate

enhanced shareholder return, and ii) to achieve commercial sustainability for developmental assets and deliver economic impact and benefits to the nation.



Source: Khazanah, 2019

Figure 5.2: Khazanah's Refreshed Mandate 2019

KLIA Aeropolis development plan is estimated to attract a GDP contribution of about RM30 billion with 56,000 jobs created over a 15-year period. Given its strategic nature to Malaysia, which is like Iskandar, Management is recommended to engage the government of Malaysia and Khazanah and seek support and endorsement for the following:

- Making it a National Agenda, to be introduced in the Economic Transformation Programme, the Malaysia Plan and Budget.
- Creation of a strong institutional framework and regulatory authority, like IDRA, which represents a joint and coordinated approach between the federal, state and local governments to drive the execution plan of the KLIA Aeropolis.
- Participation of Sovereign Wealth Fund, Retirement Fund and Pension Fund of Malaysia – Khazanah, Employees Provident Fund (EPF), Kumpulan Wang Persaraan (KWAP), in the investment for catalyst infrastructure and development projects, especially investments which deliver economic impact and benefits to the nation, i.e. GDP impact and job creation.

5.2. Land Ownership Structures

"*Pursuant to the KLIA Land Lease Agreement dated 18 October 1999 entered between Malaysia Airports (Sepang) Sdn. Bhd. (MA (Sepang)) and the Federal Land Commissioner (FLC), MA (Sepang) has been granted the right of use of the KLIA land for a period of 50 years. However, following a restructuring exercise for Malaysia Airports, the Land Lease Agreement was replaced by a new Land Lease Agreement dated 12 February 2009. MA (Sepang) has been granted the right of use of the KLIA land for a period of 25 years, expiring 11 February 2034*" (Management, 2019).

Given its land lease structure and a relatively short-tenure remaining (~15 years), this will have an impact on the feasibility, speed and types of developments that will be achievable, as opposed to a freehold land and leasehold land title.

- The potential for large scale commercial developments will be challenging, including retail and purpose-built office, require constant renewal and redevelopment, as these commercial offerings generally have long lifespans. Not having certainly of ownership could have a significant impact on owners' willingness to invest and maintain the quality of projects, particularly in the years leading up to the end of the lease. Failure to maintain quality can have a major detrimental impact on performance.

- Industrial REITs may be less willing to get involved in leasehold or land lease developments. REITs generally want long term, cash generating assets. A lack of ownership may make it difficult for financing purpose and least attractive for REITs.

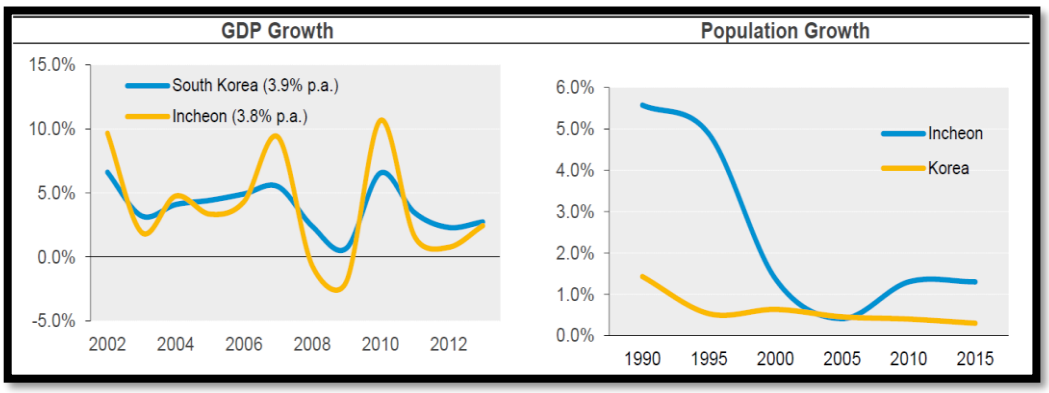
In April 2016, Malaysia Airports has been granted an extended land lease of 60 years on a rolling basis for the KLIA land, which includes areas earmarked for the KLIA Aeropolis. Malaysia Airports currently in negotiation with FLC to finalize the land lease extension. It's important for Malaysia Airports to negotiate for a more lenient land ownership structure, taking into consideration the industry requirements, to facilitate the commercial and industrial developments (Management, 2019).

5.3. Incentives for Business

Bayan Lepas Free Industrial Zone, a high-tech manufacturing area in Bayan Lepas, is Malaysia's first Free Economic Zones (FEZ) opened on Penang Island in 1972. To attract multinational corporations to the zone, the Free Trade Zones Act was enacted by the Malaysian federal government in 1971 and pioneer tax incentives were offered. The zone is now home to various multinational firms, including Bosch, Motorola, Dell, Intel and Hewlett-Packard, and has been regarded as the *Silicon Valley of the East*. It was highly successful attracting international businesses involved in labour intensive electronics assembly. This has become the backbone of the Penang economy ever since.

Reference is also being made to the types special economic zone incentives offered in Iskandar Development Region, such as an exemption from withholding and corporate tax on royalties and technical fees paid to non – residents for a period of ten (10) years and lower personal income tax for qualified knowledge workers, which are critical attraction for foreign investments in ensuring the successful and on-going development.

Looking abroad, South Korea's Incheon FEZ has been relatively successful in supporting a spike in population growth, although this FEZ has had the added advantage of being opened at roughly the same time as Incheon International Airport (which is located within the FEZ). Interestingly, GDP growth in Incheon has lagged the Korean average. This suggests that the FEZ has had a greater impact in attracting residents than employers (Management, 2019).



Sources: Korea Statistics; Economist Intelligence Unit; UNData; KOSIS; Urbis; Management, 2019

Figure 5.3: Impact of FEZ in Incheon (1990 – 2015)

Generally, developers are always looking to support their large-scale developments through the provision of various incentives offered by for businesses. As the first cybercity in Malaysia and the core of the Multimedia Super Corridor (MSC Malaysia), the neighbouring Cyberjaya has always been key in moving Malaysia towards an innovation – led economy. Not surprisingly, many Cyberjaya incentives apply to companies that continue this vision, such as tax incentives, 100 per cent foreign ownership, duty-free hardware and double deduction for certain expenses. It's widely anticipated that KLIA's competitors may be positioning themselves for this. The absence of specific incentives proposed for KLIA Aeropolis will put the development at a disadvantage.

According to the Management, World Bank has produced some high-level findings regarding what drives the success of FEZs:

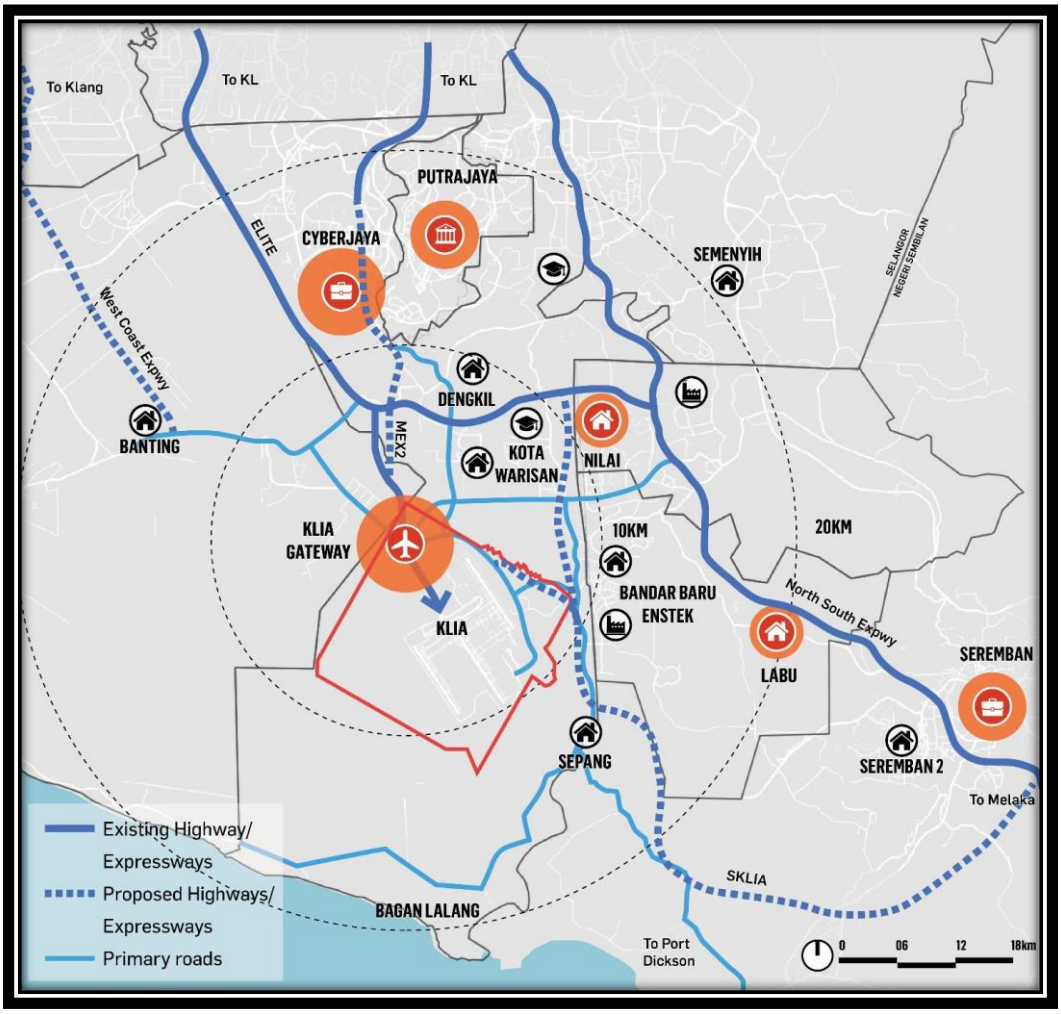
- The national investment climate and national competitiveness are strongly correlated with FEZ outcomes. That is, a FEZ cannot make up for an uncompetitive economy, but can complement it.
- Full access to the local and regional market is required – businesses within the FEZ should not be prevented from competing in local markets.
- Within a FEZ, transport and infrastructure are crucial to their success. Similarly, providing for efficient import and export transactions can be crucial if trade focussed industries are sought.

Interestingly, the World Bank has also indicated that these drivers of success are far more important than the traditional factors that define a FEZ – low wages, fiscal incentives and trade preferences (Management, 2019).

The development of a FEZ at KLIA Aeropolis, if done well, has the potential to be a highly successful generator of development for the area. It's recommended for Malaysia Airports to discuss with government the potential to provide benefits and incentives to support the development of KLIA Aeropolis, a piece of national infrastructure. Apart from tax incentives, loosening of land ownership structures would be a good start.

5.4. Support from the Government on Infrastructure Development and Connectivity

KLIA is very well connected by highways and major roads on the north and east of it. Besides proximity to the runways, ease of connectivity with North South Expressway and ELITE Toll Road and the proposed West Coast Expressway should be attractive for industrial and logistics providers.



Source: Management, 2019

Figure 5.4: Road Access and Circulation

Infrastructure development and connectivity are important factors for Malaysia Airports to service both the airport and the KLIA Aeropolis development. These factors are also critical to the success of all major commercial and industrial developments. There have been many infrastructure projects proposed for the Southern Corridor of GKL, including the following:

- West Coast Expressway (WCE): Continuing the WCE beyond Banting to KLIA would provide better connections from western suburbs of GKL as well the cities on Malaysia's north east cost to KLIA. It would also allow faster and direct connectivity between KLIA and Port Klang, where the ease of movement of goods and containers would be an attraction for industries that rely on air and sea shipments and timely air-sea and/or sea-air transhipments.

- SKLIA (Senawang – KLIA Expressway): This would provide direct access for industries at Seremban / Senawang to the eastern side of KLIA Aeropolis where the logistics and aerospace clusters are emerging. It will also significantly improve the connectivity to the towns on the south and south east of KLIA Aeropolis, opening this long-term growth corridor.

- MEX 2: This 18km long connection will provide the shortest route from KLIA to Cyberjaya/ Putrajaya and further to KL City. This helps support the integration of Putrajaya, Cyberjaya and the Southern Growth Corridor with the rest of GKL.

Each of these infrastructures will play a different role in opening the growth corridor and improving the integration of the region with GKL. Importantly, the MEX 2 and WCE will be highly supportive of pre-existing infrastructure, meaning that benefits can be even greater. Ease of highway connectivity will allow businesses to attract talent and enable speedier movements of goods and raw materials (Management, 2019).

5.5. Attract the Participation of Reputable Developers and Strategic Partners in KLIA Aeropolis

The participation Temasek Holding in Iskandar Malaysia represented the first large-scale investment by Singapore, marking at as a significant milestone for the development. This could encourage the confidence level and subsequently participation by Singapore private investors. The couples with the participation of Khazanah and local reputable developers are the key drivers in boosting confidence and investment appetite in Iskandar. Some of the catalytical development projects are Danga Bay (IWH), Nusajaya (UEM Land, SP Setia), and Medini (Sunway, Mah Sing and E&O).

Its worth for Malaysia Airports' considerations on replicating the similar development model, by attracting the participation of local and foreign reputable developers and players in KLIA Aeropolis, such as SP Setia, E&O, WCT, Sunway, Mah Sing, UM Land. These players have strong funding capability, solid track record in large scale industrial and commercial developments, could boost market confidence and propel investment appetite in KLIA Aeropolis.

Further, it's also recommended for Malaysia Airports to establish strategic alliances with Khazanah's portfolio companies for the development of KLIA Aeropolis, including strategic delivery partners for infrastructure and construction, property developer, theme park operator, integrated healthcare provider, and sustainable energy development.

- Infrastructure and Construction – UEM Group Berhad. It's a leading engineering-based infrastructure and services group with core businesses in expressways, townships and property development, engineering and construction, and asset and facility management.

- Property Developer – UEM Sunrise Berhad. Its core competencies include macro township development and high-rise residential, commercial, retail and integrated developments. It is the master developer of Iskandar Puteri, one of the five (5) flagship zones and a key driver of Iskandar.

- Theme Park Operator – Themed Attractions Resorts & Hotels Sdn Bhd. It focuses on developing and operating world-class destination resorts. Examples are Desaru Coast destination resort, LEGOLAND® Malaysia Resort and The Datai Langkawi.

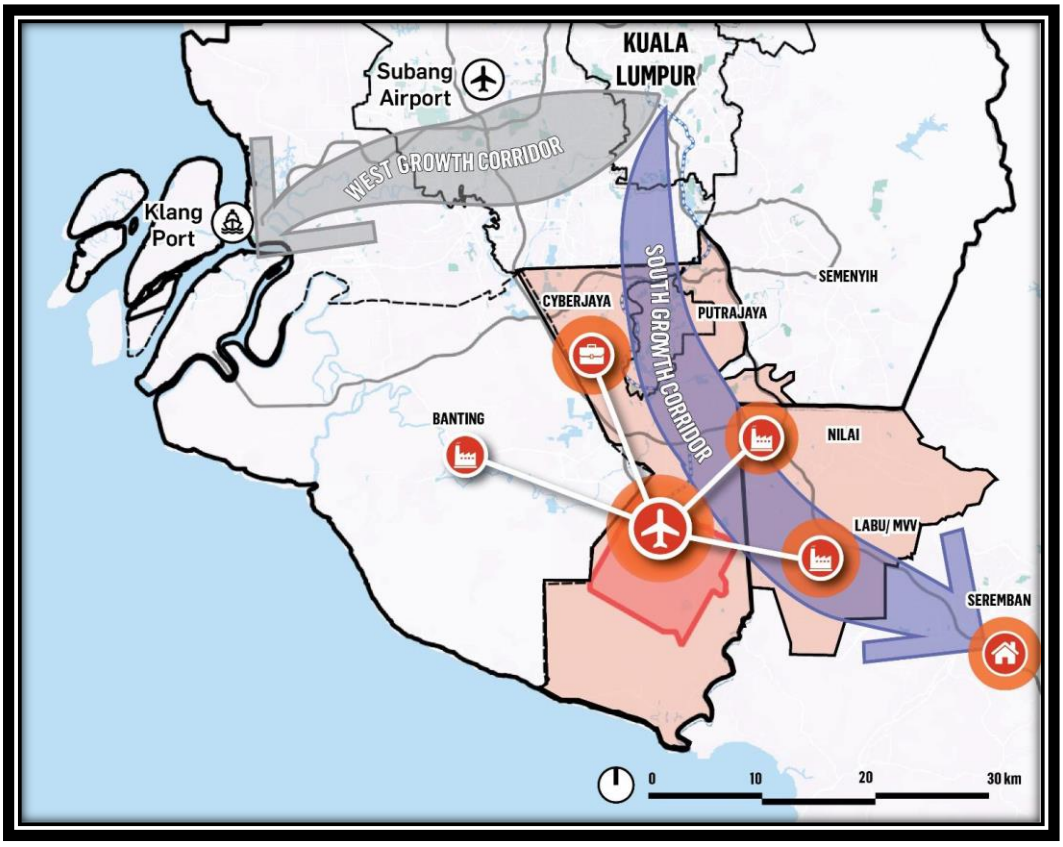
- Healthcare – IHH Healthcare Berhad. It is a leading premium integrated healthcare provider in markets where the demand for quality care is strong and growing. It is one of the largest healthcare groups in the world by market capitalisation, employing more than 35,000 people and operating over 10,000 licensed beds across 49 hospitals in nine (9) countries worldwide. It offers the full spectrum of integrated healthcare services from clinics to hospitals to quaternary care and a wide range of ancillary services.

- Sustainable Energy Development – Cenergi SEA, which invests in clean energy projects in Malaysia and Southeast Asia. The key focus areas are solar, biogas, mini hydro, biomass, and energy efficiency projects. It is operating a Built-Own-Transfer (BOT) energy savings project worth of RM40million with a local university, which will be completed over four (4) phases by the end of 2018. Cenergi SEA is one of the largest grid-connected palm oil mill effluent biogas players in the country. It has four (4) biogas plants with a total generation capacity of 5.5MW (Khazanah, 2019)

5.6. Market Positioning – "KLIA as the Logistical Heart of Southern Corridor"

Ideally the local and State governments would work together to develop an overarching 'growth-corridor masterplan' for the Southern Corridor, and the biggest land owners, namely Malaysia Airports, MVV and among others, would be part of the process. This process would crystallise the long-term opportunity for the region in the eyes of both government and industry. It would also help inform infrastructure decisions that may be harder to make without cooperation.

The "Southern Corridor" should be positioned as the future growth engine of GKL. Indeed, the area between Cyberjaya and Seremban could ultimately be a major economic growth corridor for GKL and needs to be marketed as such. The positioning has already been started by MVV. KLIA should then be positioned as the "logistical heart of the Southern Corridor". It is the central piece in a newly forming economic ecosystem.



Source: Management, 2019

Figure 5.5: KLIA as the Logistical Heart of the Southern Corridor

KLIA Aeropolis has some competitive advantages and could be positioned as the heart of this growth corridor. MVV's developments would produce products, which would then be warehoused or distributed through facilities at KLIA. KLIA Aeropolis' role should focus on transport and logistics, but also take a much broader industrial roles such as assembly manufacturing, service industries, and other industries that benefit from quick delivery of parts. Its linkage to Port Klang will be important – this is where the intermodal hub concept becomes important.

While this type of cooperation with MVV is relatively fresh in Malaysia, or other markets, Malaysia Airports is recommended to give it a go. Even if it is not fully achieved, this positioning for KLIA remains intact. Indeed, Malaysia Airports could still unilaterally promote the idea of the Southern Growth, which has at its heart KLIA.

5.7. Well-defined Execution Strategy – Land Uses and Development Phasing

According to Management, Kuala Lumpur has a distinct lack of international grade major industrial business parks. Penang and Johor Bahru both have large swathes of land dedicated to industrial land uses. It is generally good quality land – flat, well serviced by freeways and attracting investment (particularly in the case of Penang).

However, GKL has a remarkable lack of such industrial land, the land available is often developed into smaller terrace style industrial units and not the type of large-scale factories that are being built in, for example, Mukim 13 in Penang. Mukim 13 has a large 1,500 acre industrial park that has attracted Honda, Haemonetics (global provider of blood and plasma products), Bose, and Sandisk, which have all built 200,000 – 300,000 sq.ft facilities (Management, 2019).

It is important to put this in the context of what else is happening in the market. KLIA's major competitor in the southern corridor is likely to be MVV in the coming decades. MVV is marketing itself to attract high-tech and green-tech industries. This is likely to have challenges – the more high-tech the industry the greater the need for highly educated workers, which are not in high supply within the local region currently.

5.7.1. Immediate Focus – Industrial Development on area where existing and adequate infrastructure exists

Given the nature of its relatively unattractive land ownership structure, i.e. land lease, industrial development will be least impacted by the leased land status, as the construction cost for industrial development is relatively low, so redevelopment after 30 years is less of an issue. Developers are more likely to be willing to take the 'risk' on a lower cost project.

Meanwhile, the potential of an integrated transport terminal (or intermodal transport hub) could have a major catalytic impact. KLIA already has two major elements – the airport and the KLIA Express. If greater freight infrastructure could be provided this could help support broader growth of the region.

Based on the surrounding better-quality industrial development is emerging in the locale, evidenced by Coca-Cola's bottling plant and Alibaba's investments on the EWTP / DFTZ project, the land use that has the highest success likelihood is clearly industrial. The site has most of the attributes of a strong industrial precinct, and KLIA's competitive advantage is clearly in distribution and warehousing, and this has already presented KLIA with some relatively easy wins. Malaysia Airports' current focus on this is appropriate and should continue.

KLIA should also promote manufacturing and assembly type land uses. This land use complements both the airport (which can quickly provide parts required) as well as the current warehousing and distribution land uses (Alibaba's DFTZ project). Small electronic devices, for example, could be assembled at KLIA, then make use of Alibaba's distribution capacity.

Cold storage, in many ways a sub-set of distribution and warehousing, would also appear to be a good option for KLIA. Increasingly food products are transported fresh, and cold storage is required quickly to ensure fresh delivery. A facility at KLIA could hold Malaysian product prior to being shipped through KLIA, or foreign product straight off the plane.

In terms of building facility, its recommended to be ready built factories or built-to-suit facility. Furthermore, the industrial developments need to be of international quality, and Malaysia Airports is advised to consider partnering with an international developer to ensure this quality is achieved and maintained. As such, this can be marketed to both international and local tenants. The target market for logistics will be largely international, while non-logistics elements will need to be a mix of international and local.

Refer to Iskandar developments, these proposed industrial developments should be focusing on area where existing and adequate infrastructure exists, for instance surrounding Alibaba's DFTZ project where the platform and common infrastructures has been laid down, to improve the overall commercial viability of the projects.

5.7.2. Medium to Long-term Focus – Commercial Development / Offices

One of the key threats identified is the excess of commercial land surrounding, i.e. even without further supply at KLIA, there will still be surplus available commercial land at least in the immediate near future. Commercial development is highly reliant on being able to attract white-collar workers and KLIA is relatively isolated from white collar workers which will make commercial development more difficult.

The situation is exacerbated further with the relaunch of MVV, supplying approximately 2,838 acres of land across Labu, New Labu, Hamilton and Kirby, that will be in direct competition of KLIA's land supply and could also add to the challenge of oversupply. There is also little evidence of airports being strong catalysts for commercial development, particularly of the scale available at KLIA. The lack of nearby population means significant traditional retail development not attached to the airport will carry significant risk (Management, 2019).

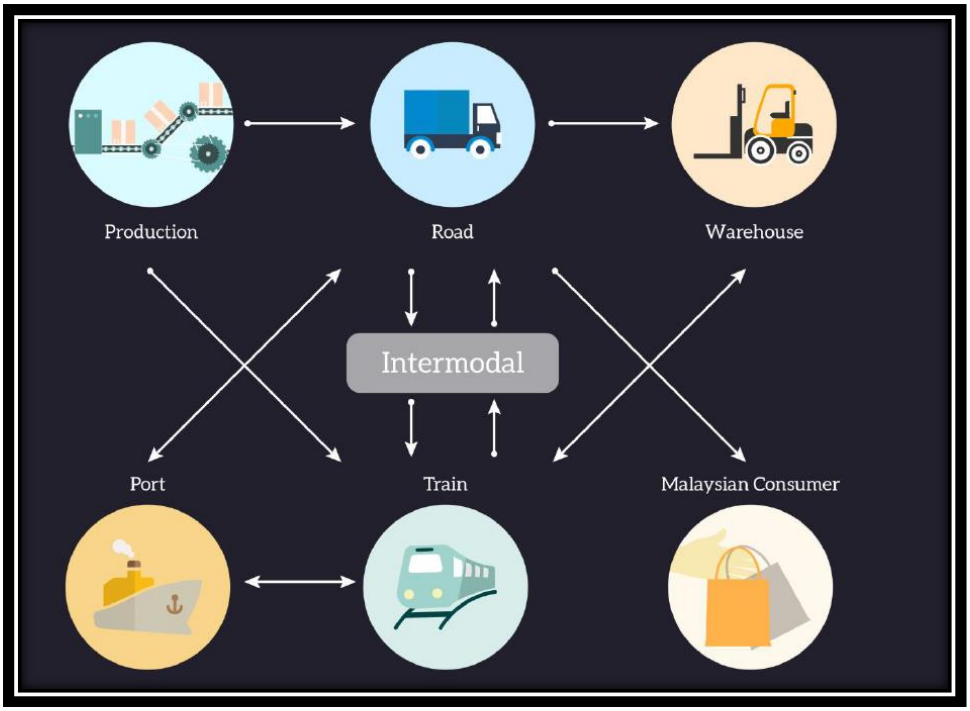
In view of the above concerns, commercial development and offices are recommended for long-term development plan. As the industrial development expands, this will support job creation, and further support residential growth. It is a virtuous circle – jobs attract residents, residents attract jobs. In the medium term these jobs are more likely to be blue-collar than white. But over the medium to long term, as the region becomes more established white-collar employment will become more prevalent, and the demographics of the area will change. At this stage, commercial development will become much more successful, again supporting the growth of the region. At this point the level of oversupply of commercial land will hopefully be abating (Management, 2019).

In short, KLIA needs to follow this path. First, focus on the land use which it has competitive strengths – light industrial, logistics, warehouse, distribution and cold storage. Only after the industrial developments become established, perhaps in the medium term, Malaysia Airports could then start to consider higher order commercial uses, and even then, subject to prevailing market conditions.

5.8. Intermodal Transport Hub

5.8.1. General Concept of an Intermodal Transport Hub

According to Management, large scale intermodal transport hubs have proven to be a successful distribution point in international markets however would be a relatively new phenomenon in the Malaysian landscape. These types of facilities provide a means of transferring goods from one means of transport to another, while allowing the most appropriate form of transport to complete any given leg of the transport task. The function of inland intermodal transport hubs in the transport task is shown from production, whether in Malaysia or abroad, through to either the Malaysian consumer or port.



Source: Management, 2019

Figure 5.6: Intermodal Transport Hub

The main benefits from an intermodal transport hub in Malaysia would be:

- Improvement in the efficiency of freight distribution throughout the city. For example, goods brought up from Singapore on a large truck can be transferred to smaller vehicles for distribution through Kuala Lumpur.
- Creation of jobs in both the city and regional areas Sepang.

- The ability to create "value add' functions including warehousing, bonded facilities, container repairs and storage etc. This fits very neatly with KLIA strengths.

For an intermodal transport hub to be successful, the following is required:

- Location relative to a traffic base and road and rail links is the most important characteristic of an intermodal terminal. Ports and airports are the most vital traffic base for import and export terminals, while a local industrial traffic base is also likely to be served.

- Efficiency of an intermodal transport hub can be characterised by ease of road access, systems (pre-booking), as well as layout and design.

- Intermodal transport hubs must be financially sustainable. To achieve this, volumes must be high, rail haulage must be long, and in most cases, an operational freight rail line should exist. Other complementary activities may assist in ensuring the financial sustainability of terminals including i) container repairs, cleaning, storage, shipping and stuffing, ii) warehousing, iii) truck parking and maintenance, and iv) inland container depot including custom clearance and quarantine.

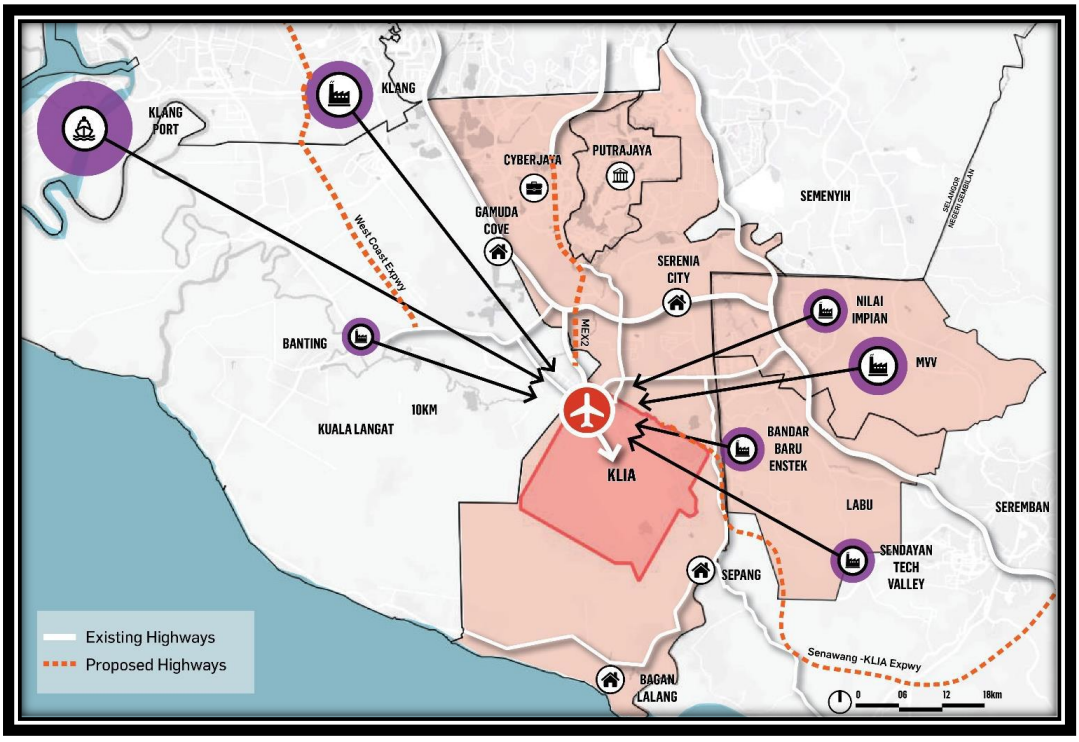
- Rail services must meet customer requirements through price, punctuality, transit time, frequency, commercial departure and arrival times, and ease of booking and documentation processing.

(Management, 2019)

5.8.2. Intermodal Transport Hub and the KLIA Context

By having an airport, KLIA is already operating as an intermodal transport hub of sorts. The question is whether this could be expanded to have a more significant role in GKL's broader transport infrastructure, including linking goods from the southern states of GKL and Singapore through to GKL and the northern states.

Clearly, KLIA will have many attributes that lend itself to be a successful intermodal transport hub. According to Management, approximately 30 per cent of Malaysia's sea freight enters through Johor Bahru, where a proportion of this must travel to Kuala Lumpur and beyond. Johor Bahru's port is becoming increasingly competitive with Singapore and growing its market share.



Source: Management, 2019

Figure 5.7: KLIA Intermodal Transport Hub Concept

As guided by Management, there are some potential advantages and leverage that an intermodal transport hub will present:

- Potentially increase in freight connectivity with Port Klang via rail, to promote the movement of cargo and increase synergies in freight operations between Port Klang and KLIA.

- Potential increase in movements of trucks carrying cargo via increased provision of expressways (SKLIA, MEX 2, West Coast Expressway). This could help increase the capacity of the movement of goods between KLIA Aeropolis and the surrounding regions such as Port Klang, Seremban, Labu, Kuala Lumpur and the Sepang region.

- Potential increase in the movement of people via road and rail / light transit connection. The increased provision of highways and a potential increase in rail infrastructure can help to increase the pool of labour by connecting KLIA Aeropolis to surrounding regions.

It's recommended that further analysis to be undertaken by Malaysia Airports to assess the full viability of an intermodal transport hub at KLIA Aeropolis, which includes:

- How an intermodal terminal would fit into the infrastructure at Port Klang;
- The potential benefit of allowing goods to be containerised at KLIA, then taken by rail directly to Port Klang or even Johor Bahru for shipping.
- The cost of transporting good via KLIA compared to other options (i.e. trucked directly to Port Klang).
- Ultimately, the most important assessment will be one of freight demand within and through Kuala Lumpur, and what share of this might reasonably go through KLIA.

The previous government of Malaysia released a Logistics and Trade Facilitation Masterplan (2015 – 2020) report in 2015, led by the Minister for Transport (MOT). In this study, one of the key objectives is to "Establish freight hubs at strategic locations". To achieve this, a key recommendation is to:

"Develop one-stop freight hubs with transport and logistics facilities such as cargo processing, freight redirection and storage utilising, intermodal transportation and enhanced value-added activity, at strategic locations within the country"

It's recommended for Malaysia Airports to discuss the Logistics and Trade Facilitation Masterplan (2015 – 2020) with the new government of Malaysia, and the needs of the broader freight system and the capacity of KLIA to play a greater role as an intermodal transport hub.

5.9. Flagship and Catalytic Developments

One of the fundamental weaknesses of KLIA Aeropolis from a development perspective is the lack of population within proximity. The area immediately surrounding KLIA is sparsely developed, and this has significant implications for commercial development that is reliant on a local catchment (especially retail).

Flagship and catalytic developments are strong driver for economic and population growth. Nusajaya has always be the key focus of Iskandar Malaysia. The surrounding infrastructure has been improved by both federal and state government to attract the development of catalytic projects. For instances, Puteri Harbour Waterfront Development, Edu City, Medini, Kota Iskandar, Southern Industrial and Logistics Clusters and the International Destination Resort.

Year 2012 was marked as the turning point for Iskandar Malaysia, with the completion of the catalytic projects, namely Johor Premium Outlets, Legoland Theme Park, Marlborough College, Coastal Highway, Traders Hotel, and Puteri Harbour Family Theme Park. There year 2012 was also recorded with RM20.4 billion committed investments, the strongest interest from investors in Iskandar Malaysia since its inception in year 2006 (Wong, Yee, Quah & Irvin Seah, 2013; Terrence Wong, 2013)

In view of the success from Iskandar / Nusajaya, its worth for Malaysia Airports to consider the development of catalytic projects, for instances are the hospital and wellness centre, bulky goods and car showrooms, tertiary education and theme park, to drive economic and population growth, as well as to attract investments and critical mass.

5.9.1. Hospital and Wellness Centre

As far as land allocation is relevant, the only two categories of healthcare facilities that require a specific allocation of land are hospitals (private and public) and Government health clinics. The remaining healthcare categories (independent General Practitioner practices, dentists etc.) are likely to be in commercial developments, and hence do not require an explicit allocation of land.

Health clinics will be in locations with strong population catchments, so a hospital is really the only option for KLIA. A more likely consideration might be the capacity to focus on medical tourism as a target market.

According to Management, medical tourism market continues to grow rapidly throughout South East Asia, with Thailand a dominant player. Malaysia has seen solid growth and has strong Government support for developing this further. The Malaysian Healthcare Travel Council (MHTC), part of the Ministry of Finance (MoF), has indicated the total number of medical tourists to Malaysia is growing at 30 per cent per annum, with an estimate 860,000 visitors in year 2016. Indonesia and Singapore are the two most important source markets, followed by Indian and Chinese visitors (Management, 2019).

A hospital development could be developed in conjunction with a wellness centre. However, a stronger approach, one which would fit in neatly with Sepang Government policy, would be to provide the 'wellness' elements on or near Sepang's beaches. The offer could of a wellness centre and hospital, co-managed, could be quite a powerful offer if done well.

Furthermore, there are only limited medical facilities within the KLIA region. As Nilai and Sepang develop, the need for medical services will increase.

5.9.2. Bulky Goods and Car Showrooms

'Bulky Goods' is one of the most destinational of retail formats, sometimes called Power Centres. They bring together several large format stores, easy parking and generally focuses on 'bulky' goods like furniture, cars, and white-goods. They enjoy high exposure locations and are generally most successful in areas with high levels of household formation.

The strength of this option in the context of KLIA is that bulky-goods are not as reliant on having local catchment. They tend to draw from a wide geographic region. For instance, Nilai 3 Wholesale Centre, a massive 165-hectare wholesale centre with competitively priced goods such as textile, furniture, clothing, luggage, carpet, garden equipment and car accessories, is an 'old fashion' version of this, and it attracts large numbers of customers from throughout GKL, particularly on the weekend.

KLIA Aeropolis could be considered this development, as it provides the two key features – large flat sites on busy roads. Larger bulky goods developments are generally require 200,000 to 400,000 sq.ft Gross Floor Area (GFA), taking up as much as 20 acres of net land. Ten car dealerships may provide 200,000 to 250,000 sq.ft of GFA, across a net 15 to 20 acres land. KLIA Aeropolis with huge land bank available is a suitable location and will be able to satisfy these requirements (Management, 2019).

5.9.3. Tertiary Education

A long-term option to help support the growth of population and local white-collar workforce is providing a tertiary education facility in the area. The impact of tertiary education would not be instantaneous however, the university would take time to develop its reputation and establish the quality of its research and students.

This strategy would be highly reliant on attracting a university or tertiary institution, which has a very strong international reputation and research arms, as well as is interested in a custom-built new campus, with preference be given to those focus on aviation, engineering, or perhaps a form of international studies.

Perhaps KLIA could start with an aeronautical focused university, for instance:

- Embry Riddle Aeronautical University in the United States – which offers bachelor, master's, and PhD degree programs in arts and sciences, aviation, business, engineering, computer programming, cyber security and security and intelligence, and
- Korea Aerospace University in South Korea – which offers most of the aerospace fields including Aerospace & Mechanical Engineering, Electronics, Telecommunications, Computer Engineering, Air Transportation and Logistics, Aeronautical Science & Flight Operation, and Air and Space Law.

An alternative option might be the development of a vocational training campus within KLIA. It would make sense to ensure a vocational training facility to have a strong aviation focus, but it could also provide more general vocational training.

5.9.4. Theme Park

Theme parks are a common consideration for catalysing projects, as a key component to entice longer stays around KLIA. Ultimately, theme parks and its supporting developments such as hotels and second-gate attractions all work to encourage a longer stay and increased spending for visitors.

A recent trend in the industry, MICE and "confertainment" (refers to Conferences and Entertainment) are becoming an increasingly important market segment for theme parks. Based on the philosophy that people work better in a relaxed environment, theme parks and adjacent retail, dining and entertainment (RD&E) venues are no longer limited to retail visitors but also seek to attract corporate clients to their meeting and conference venues that are packaged with entertainment value and offer onsite fringe program options for spouses and children.

Given the aforesaid trend, the proposed theming and positioning of a theme park should have a broad appeal to a range of market segments including young thrill-seekers, couples, and families with children and even corporate clients. Branding

should be mutually reinforced by the theme park and the media which will create a strong domestic following.

It's recommended for Malaysia Airports to work with a reputable, experienced international theme park developer and operator. The development plan, feasibility assessment and past performance (visitation, financial) prepared by the developer should be scrutinised heavily to ensure its robustness and viability.

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